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McGILL UNIVERSITY Montreal

CALENDAR 1973-1974

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General Announcement

Directory of Staff
Undergraduate Scholarships, Bursaries, Prizes, Medal and Loan Funds
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Summer Session

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Separate copies of any of the above Announcements may be obtained from the Registrar.

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McGill University

GENERAL ANNOUNCEMENT

1973-74

P.O. Box 6070,
Montreal 101,
Quebec, Canada

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THE UNIVERSITY

1 ADMINISTRATIVE OFFICERS

)ONALD O. HEBB, B.A. (Dal.), Ph.D. (Harv.), D.Sc. (Chic., Wat., York, McM.), D.H.L. (Northeastern), LL.D. (Dal., Queen's, U.W.O.), M.A., F.R.S., F.R.S.C. *Chancellor*

TUART M. FINLAYSON, B.Sc. *Chairman of the Board of Governors*

:OBERT E. BELL, C.C., B.A., M.A. (U.B.C.), D.Sc. (U.N.B.), LL.D. (Tor.), Ph.D., F.R.S., F.R.S.C. *Principal and Vice-Chancellor*

:IGIL PEDERSEN, B.A. (S.G.W.U.), Ed.D. (Harv.), M.A. *Vice-Principal (Academic)*

TANLEY B. FROST, B.D., M.Th. (Lond.), Dr.Phil. (Marburg), D.D. (Vic., Tor.), D.Litt. (Mem.) *Vice-Principal (Administration and Professional Faculties)*

MAURICE McGREGOR, M.B.B.Ch., M.D. (Rand), F.R.C.P. (Lond.), F.R.C.P. (C) *Vice-Principal (Health Care)*

\. C. BLACKWOOD, B.Sc., M.Sc. (Alta.), Ph. D. (Wis.) *Vice-Principal (Macdonald College)*

\LLAN C. McCOLL, D.F.C., B.Com., C.A. *Director of Finance*

)OHN H. HOLTON, B.Com. (Tor.), *Secretary of the Board of Governors*

:OLIN M. McDOUGALL, D.S.O., B.A. *Registrar and Secretary of Senate*

N. DOUGLAS JOHNSTON, B.Com. *University Treasurer*

'EGGY SHEPPARD, B.A. (S.G.W.U.), B.Ed. *Admissions Office, Director*

HARRY E. GRIFFITHS, M.A. (Middlebury), B.Com. *Athletics, Physical Education and Recreation, Director*

:HARLES E. NOEL, B.Com., C.A. *Business Operations, Director*

RONALD G. KURANOFF *Chief Accountant*

)OHN ARMOUR, AACCA *Comptroller*

M. SAEED MIRZA, B.Eng. (Karachi), M.Eng., Ph.D. *Dean of Students*

)EAN DAVID, L.S.A. (U. of M.), Ph.D. (Calif.) *Macdonald College, Registrar*

WILLIAM C. SHIPLEY, B.Sc., M.A. *Macdonald College, Secretary and Co-ordinator of Administrative Services*

D. LORNE GALES, B.A., B.C.L. *McGill Fund Council, Executive Director*

ROBIN STRACHAN, B.A., M.A. (Cantab.) *McGill-Queen's University Press, Director*

JOHN E. BATES, B.Sc. (Lond.), B.Com. (S.G.W.U.) *Management Systems, Director*

PAUL M. MATTHEWS, B.A. (Ott.), M.Sc. (Fordham) *Personnel Services, Director*

G. S. KINGDON, B.A.Sc. (Tor.) *Physical Planning Office, Director*

A. DOUGLAS ELLIOTT, M.M., B.Eng. *Physical Plant, Director*

ANDREW ALLEN *Public Relations and Information Office, Director*

EDWARD K. DESROSIERS, B.A., M.A. *Research for Planning and Development Office, Director*

J. STANLEY KENNEDY, B.A., B.D. *Student Aid and Student Counselling, Director*

JOHN G. LOHRENZ, M.D. (Man.) *University Health Service, Director*

R. A. FARLEY, B.A. (Ashland), B.L.S. (Wis.), M.S., Ph.D. (Ill.) *University Libraries, Director*

1.2 DEANS AND DIRECTORS

A. C. BLACKWOOD, B.Sc., M.Sc. (Alta.), Ph.D. (Wis.) *Vice-Principal of Macdonald College and Dean, Faculty of Agriculture*

ROBERT VOGEL, B.A. (S.G.W.U.), M.A., Ph.D. *Arts*

ERNEST R. AMBROSE, D.D.S., F.I.C.D. *Dentistry*

C. WAYNE HALL, M.A. (Bishop's) *Educatio*
G. L. d'OMBRAIN, B.Sc. (Eng.), Ph.D. (Lond.), D.I.C., A.G.C.I., M.I.E.E., M.A.I.E.E. *Engineerin*
WALTER F. HITSCHFELD, B.A.Sc. (Tor.), Ph.D. *Graduate Studies and Researc*
JOHN W. DURNFORD, B.A., B.C.L. *La*
HOWARD I. ROSS, O.B.E., C.A., M.A. (Oxon.), LL.D. (Queen's, S.G.W.U.), D.Sc. Comm. (Sher.), B.A. *Managemer*
R. F. PATRICK CRONIN, M.D.,C.M., M.Sc., M.R.C.P. (Lond.), F.R.C.P.(C) *Medicin*
HELMUT BLUME, (Graduate, Staatliche Akademische Hochschule für Musik, Berlin) *Musi*
GEORGE JOHNSTON, M.A., B.D. (Glasgow), Ph.D. (Cantab.) *Religious Studie*
E. J. STANSBURY, M.A., Ph.D. (Tor.) *Scienc*
NORBERT SCHOENAUER, B.Arch. (Royal Hungarian Univ.), M.Arch. *Architectur*
GEORGE MARSAGLIA, B.Sc. (Colorado), Ph.D. (Ohio State) *Computer Scienc*
HELEN R. NEILSON, M.B.E., B.H.S., M.Sc. *Food Scienc*
EFFIE C. ASTBURY, M.L.S. (Tor.), B.A., B.L.S. *Library Scienc*
JOAN M. GILCHRIST, B.N., M.Sc. (Appl.), R.N. *Nursin*
GUY H. FISK, B.A., M.D.,C.M., D.T.M. and H. (Eng.), F.R.C.P.(C) *Physical and Occupational Therap*
DAVID E. WOODSWORTH, B.A. (Tor.), M.A. (Mich.), Ph.D. (Brandeis) *Social Wor*

1.3 HISTORY

In 1813 the Hon. James McGill, a leading merchant and prominent citizen of Montrea died and left in his will a property of forty-six acres and a sum of 10,000 pounds t the already existing Royal Institution for the Advancement of Learning upon conditio that the latter erected "upon the said tract or parcel of land, an University or College for the purpose of education and the advancement of learning in this Province"; an further upon condition that "one of the Colleges to be comprised in the said Universit shall be named and perpetually be known and distinguished by the appellation of 'McGil College'."

Owing to a lack of funds and persistent opposition the complete University which ha been planned by the Royal Institution was not built, but after years of litigation an effort a Royal Charter was granted in 1821 and the University of McGill College wa opened in 1829 with what remained of James McGill's legacy as its endowment, an teaching then started in the Faculties of Medicine and Arts. The Medical Faculty grew steadily, and after an amended Charter was secured in 1852 a new era of progress began for the Faculty of Arts with the appointment in 1855 of Sir William Dawson a Principal, a position which he held for thirty-eight years.

Since 1855 the University has grown vigorously, dividing itself into further faculties. In 1899 the Royal Victoria College was opened, a gift of Baron Strathcona, to provide separate teaching and residential facilities for women students. Gradually, however, classes for men and women were merged, and now the University is wholly coeducational. In 1907 Macdonald College was established at Ste. Anne de Bellevue, as a residential college for Agriculture, Household Science, and the School for Teachers. This general development was greatly facilitated by the generosity of Sir William Macdonald, whose gifts to the University included a Physics Building, a Chemistry and Mining Building, and an Engineering Building, in addition to the college named after him.

At present more than sixteen thousand students are taking regular university courses. New buildings have been erected or acquired to provide the undergraduate and research facilities needed by the increased student body, including Douglas Hall, now a coeducational residence, and large extensions of the Royal Victoria College for women. In 1959 the McConnell Engineering Building, the gift of Mr. J. W. McConnell, was opened. The Sir Arthur Currie Memorial Gymnasium, built in 1939, has been extended to include

swimming pool opened in 1950 and a Winter Stadium which was added in 1956. In 962 His Royal Highness Prince Philip, Duke of Edinburgh, opened three new resiences for men, Gardner, McConnell and Molson Halls, made possible by generous gifts rom Mr. J. W. McConnell and the Molson family. These residences are now co-educaonal. The Leacock Humanities Building and the Roscoe Wing of the Royal Victoria Colege were in use during the 1964-65 session. The Roscoe Wing and the West Wing now omprise the Royal Victoria College and provide residence facilities for 224 women. The ast Wing and central section is now named the Strathcona Music Building and houses he Faculty of Music which moved to the new location in January 1972. The University entre, the McIntyre Medical Sciences Building, and the Stewart Biology Building were pen for the 1965-66 session. An extension to Chancellor Day Hall, housing the Faculty f Law and including a Moot Court Room, was opened for the 1966-67 session and the IcLennan Library was in use for the 1968-69 session. Burnside Hall, housing the School f Computer Science and the departments of Geography, Meteorology and Mathematics nd the building providing facilities for the Faculty of Education, now established on the IcGill campus, were in use for the 1970-71 session and the Samuel Bronfman Building or Management and Business Administration opened in September 1972.

.4 INCORPORATED AND AFFILIATED COLLEGES

.4.1 INCORPORATED COLLEGES

Iacdonald College

Iacdonald College is situated at Ste. Anne de Bellevue, about twenty-five miles from Iontreal. It consists of the Faculty of Agriculture and the School of Food Science. All legree courses are under the control of the Senate of McGill University and all the hort term courses in agriculture are under the direction of the Faculty of Agriculture.

Vice-Principal — A. C. Blackwood, B.Sc., M.Sc. (Alta.), Ph.D. (Wis.)

he Royal Victoria College

3425 University Street

he Royal Victoria College is a college of McGill University and provides residential ccommodation for women students.

Warden — Donna R. Runnalls, B.A. (U.B.C.), Ph.D. (Tor.), B.D.

.4.2 AFFILIATED THEOLOGICAL COLLEGES

he Montreal Diocesan Theological College

3473 University Street

Principal — The Rev. Monroe Peaston, M.A., B.D., Th.D.

he United Theological College of Montreal

3473 University Street

Principal — J. A. Boorman, B.A., M.A., Ph.D.

he Presbyterian College of Montreal

3495 University Street

Acting Principal — The Very Rev. C. Ritchie Bell, B.A., B.D., D.D.

NOTE: The above three colleges train students for the Ministry and grant certificates for ordination but they have remitted their degree-granting powers to the University.

1.5 GOVERNMENT

McGill University is a Corporation created by a Royal Charter granted by the Crown of the United Kingdom, a general supervisory power being retained by the Crown and exercised through the Governor-General as *Visitor*.

The *Governors* of the University constitute the Royal Institution for the Advancement of Learning, a corporation existing under the laws of the Province of Quebec. In them is vested the management of finances, the appointment, in consultation with Senate, of Professors, and other duties. Twenty-five of the Governors are elected by the Board

from amongst those nominated by its Nominating Committee; five are elected by th Graduates' Society; five are elected by Senate from amongst its members, and thr elected by the students of McGill University from amongst the student body. The Boa elects the Chancellor of the University and also, from among its members, a Chairma to preside at its meetings, who may also be the Chancellor. The Chancellor and th Principal are *ex officio* members.

The *Chancellor* is Presiding Officer of Convocation and of Joint Sessions of the Boar of Governors and the Senate.

The *Chairman of the Board of Governors* is President of the Royal Institution for th Advancement of Learning.

The *Principal* is the academic head and chief administrative officer. He is appointe by the Board of Governors after consultation with Senate. He also holds the office Vice-Chancellor of the University and is, *ex officio,* Chairman of Senate.

Senate consists of eighty-two voting members: The Chancellor, the Principal, th Chairman of the Board of Governors, the Vice-Principals, the Deans of the Faculties the Dean of Students, the Director of Libraries, the Director of the Centre for Contin uing Education, the President of the Students' Society, forty-one members elected b their Faculties, four Governors elected by the Board, and fourteen students elected b the students. The Senate is the highest academic authority of the University and ha control over admission, courses of study, discipline, and degrees.

The carrying out of the regulations of Senate along with primary responsibility fo the conduct of the educational work of the University is entrusted to the variou Faculties and Schools.

1.5.1 STUDENT GOVERNMEN

All students registered in the University are members of the Students' Society excep for students governed by the constitution of the Macdonald College Students' Societ and students registered in the Faculty of Graduate Studies and Research who ar non-resident students or full-time members of the teaching staff.

The executive and legislative authority of the Society is vested in the Executiv Committee and Students' Council respectively. The Council, as the governing body, i responsible for the proper functioning of all activities of the Society. All undergraduat societies, major activities, clubs, societies, publications and other campus organization of the Students' Society are under its jurisdiction. It is the only recognized medium apart from the Students' Athletics Council, between the student body and the Universit authorities.

The Council is responsible to the students through open meetings and referendum of the Students' Society, and operates according to the constitution of the Student Society.

Full details of the operations, constitution, officers and committees of the Student Society are given in the *Student Handbook*, obtainable from the Students' Society upo request.

1.6 RESEARCH INSTITUTES, CENTRES AND PROGRAMS

The Institutes and similar groups listed below carry out research and teaching in a number of specialized fields. In most of them facilities are available for qualifie students who wish to take higher degrees.

1.6.1 INSTITUTE OF AIR AND SPACE LAW

The Institute provides a program and facilities for advanced study and fundamental research in air and space law and related problems of international law for highly qualified law graduates or others with appropriate qualifications, and also provides an academic organization for fundamental research in these fields. Students may proceed towards the Diploma in Air and Space Law, the degree of Master of Laws or the Doctor of Civil Law.

Director — PROFESSOR I. A. VLASIC.

1.6.2 ALLAN MEMORIAL INSTITUTE OF PSYCHIATRY

Psychiatric Institute for teaching, research, and treatment. McGill University undertakes responsibility for the training and teaching facilities, and the Royal Victoria Hospital for the clinical work. Teaching covers both undergraduate instruction and advanced postgraduate training. Research facilities are provided for clinical and laboratory studies of clinical conditions and biochemical, physiological and psychological study of various aspects of behavioural disorders in animal and man.

Director — DR. M. DONGIER.

1.6.3 ANAESTHESIA RESEARCH DEPARTMENT

Electrophysiological and neurochemical studies on synaptic transmission in the brain: the aim is to identify the naturally occurring chemical transmitter and receptor substances and to analyse their modes of action.

Director — PROFESSOR K. KRNJEVIC.

1.6.4 ANTHROPOLOGY OF DEVELOPMENT PROGRAM

The program coordinates and furthers research and teaching on the process of socio-economic development as it affects small communities in the Canadian north and in low-income countries.

Director — PROFESSOR R. F. SALISBURY.

1.6.5 AVIATION MEDICAL RESEARCH UNIT

The Unit deals with physiology of orientation, vision and postural control.

Director — PROFESSOR G. MELVILL JONES.

1.6.6 BELLAIRS RESEARCH INSTITUTE

At this Institute, located in Barbados, research is conducted in marine biology, geology, geography and tropical climatology.

Director — PROFESSOR FINN SANDER.

1.6.7 BIOMEDICAL ENGINEERING UNIT

The BioMedical Engineering Unit operates both in the Faculties of Engineering and Medicine to carry out research and to train graduate students. Its work concentrates especially on neuromuscular control systems, sensory and neural communication theory, eye movements and electronystagmography, auditory system, hospital information, health systems, and technological applications in the clinical environment.

Acting Director — PROFESSOR C. A. LASZLO.

1.6.8 BRACE RESEARCH INSTITUTE

The Institute is concerned with the utilization of solar and wind energy as a means of improving the living conditions of peoples in arid areas. Simple solar desalination systems have been developed in addition to the combination of these systems with greenhouses for the production of food and water in arid areas. Investigations have been undertaken for developing windmills for the production of electricity and the pumping of water.

Director, Field Operations — T. A. LAWAND.

1.6.9 McGILL CANCER RESEARCH UNIT

McGill University Cancer Research Unit is supported by the National Cancer Institute of Canada. Principal field of research is the study of a control of cell division using chemo- and radio-therapeutic agents.

Director — To be appointed.

1.6.10 INSTITUTE OF COMPARATIVE LAW

The Institute of Comparative Law is established within the Faculty of Law of McGill University as a centre for comparative legal studies providing facilities for graduate work, advanced studies and field research in Private and Public Law. In private law the main emphasis is placed upon the concepts of the civil law systems of continental Europe and Quebec and of the Anglo-American-Canadian common law. In public law special attention is given to comparative constitutional law.

Director — DR. H. R. HAHLO.

1.6.11 COMPUTING CENTR

The Computing Centre provides computer service for instructional, research ar administrative purposes. Current equipment includes two large IBM systems, a 36 Model 75 and a 370 Model 155. The latter is dedicated to timesharing, permittir direct access from any location on campus equipped with a low cost terminal. Facilitie for card input and high volume printed output are available at several locations o the main campus and at Macdonald College.

Director — PROFESSOR W. D. THORPE.

1.6.12 DAIRY HERD ANALYSIS SERVIC (Livestock Population Genetics

Research in the dynamics of domesticated livestock populations with particular em phasis on the physiological and environmental factors that affect the estimation of th relative genetic merit of individual and groups of animals.

Director — PROFESSOR J. E. MOXLEY.

1.6.13 McGILL UNIVERSITY PROJECT FOR DEAF CHILDRE

This research project, begun in 1966, tries to determine methods of identifying deaf ness in early infancy and evaluating training procedures which can be used in th rehabilitation of young deaf children. The type of research undertaken includes researc on prosthetic devices such as frequency transposing hearing aids.

Director — PROFESSOR DANIEL LING.

1.6.14 CENTRE FOR DEVELOPING AREA STUDIE

The Centre attempts to coordinate research and graduate studies on development topic in both the social sciences and the applied sciences. It organizes workshops an seminars and operates a publications program and a library which contains self-instruc tional development modules.

Director — PROFESSOR T. L. HILLS.

1.6.15 CENTRE FOR EAST ASIAN STUDIE

Since 1968, the Centre for East Asian Studies has been acting as a coordinating entit in the stimulation of courses, acquisition of library and promoter of the Department o East Asian Languages and Literatures. The framework within which all of these activitie are pursued is the humanistic tradition of scholarship with primary emphasis on th modern period in both China and Japan.

Director — PROFESSOR P. T. K. LIN.

1.6.16 FOSTER RADIATION LABORATOR

Research activities are centred around the 100 MeV proton synchrocyclotron. The research program includes the study of nuclear structure by means of beta, gamma, delayed proton and delayed alpha decays, and of the properties of nuclei lying far off the beta stability line.

Director — PROFESSOR S. K. MARK.

1.6.17 FRENCH CANADA STUDIES PROGRAM

This program was established in 1963 for the study of French Canada at the under graduate and graduate levels, by research, and extension and public education pro grams. It has included in its program the award of fellowships, a large number of research projects, and the improvement of the collection of French Canadiana in the McLennan Library.

Director — PROFESSOR JEAN-LOUIS ROY.

1.6.18 GASTROINTESTINAL RESEARCH INSTITUTE

The Institute was established in 1959 to provide interdisciplinary research facility and graduate education in enterology. The research program correlates different fields, such as botany, zoology, bacteriology, physics, chemistry and clinical investigation, in problems concerning alimentary canal and nutrition. The policy of the Institute since its inception is to encourage interdepartmental activity, as well as integrate interdisci plinary research in relation to the digestive system.

Graduate students take courses in different departments which are considered cessary for the training in the particular field of research. Consideration will be given the particular interests and previous experience of the candidate in the selection the project, by arrangement with various departments, if these can be integrated o the research program. The special research interests of the Institute include: Comparative intestinal absorption of metal ions in simple forms of life and higher ammals; 2) Preparation of synthetic and naturally occurring polymers for prevention radiostrontium contamination; 3) Structure and physical function of gastrointestinal ucin from different species.

Director — PROFESSOR STANLEY C. SKORYNA.

6.19 GAULT ESTATE:
422 rue des Moulins
Mont St. Hilaire

ne Estate, a legacy from the late Brigadier A. Hamilton Gault, consists of 2200 acres forested mountain 20 miles east of Montreal, including Lac Hertel and its complete ainage basin. The entire property is protected as a Federal Bird Sanctuary.

The twelve-hundred acre western sector, with four summits linked by a 12 mile etwork of trails, is open daily throughout the year to members of the University and e visiting public. Seasonal recreational activities include hiking, skiing, snowshoeing, cnics, photography and other pursuits which do not alter or change the environment. o motorized vehicles are permitted beyond the parking area except on official business. o camping is permitted at any time. One thousand acres on the eastern shore of e lake form a Biological Reserve, to which access is restricted by permit for approved ld research in the natural sciences.

Comfortable dormitory facilities are available for up to 32 persons, for classes and r individuals involved in ecological studies. A Day-Conference Centre is provided Manoir Gault on Lac Hertel for groups of up to 50 persons. This can be used in njunction with the Dormitories. Limited accommodation is also available in the ttage. All arrangements must be made by written application to the Acting Warden.

The Estate is also headquarters for the Mont St. Hilaire Nature Conservation Centre, hich conducts a year round bilingual nature interpretation program for all ages. The ntre is supported entirely by outside funds, including grants from industry and fees r services rendered, and cooperates with educational institutions and community ganizations to provide teacher training and counselling services in outdoor education.

Acting Warden and Director of the Nature Centre — ALICE E. JOHANNSEN.

6.20 SCHOOL OF HUMAN COMMUNICATION DISORDERS
1266 Pine Ave. West

ne School of Human Communication Disorders offers both professional and research aining in speech and hearing disorders at the graduate level. Emphasis is placed on understanding of fundamental principles and critical evaluation of current ethods rather than upon the teaching of specific techniques for diagnosis and therapy.

Director — PROFESSOR D. LING.

6.21 INDUSTRIAL RELATIONS CENTRE

ne Centre provides information, evening seminars, research on industrial relations; ffers fellowships and research training; publishes newsletters surveying developments industrial relations in Canada, as well as research reports; maintains a computerized nalysis of more than 800 Canadian collective agreements. Membership from the mmunity includes crown corporations and Government agencies, industrial firms, spitals and labour unions.

Director — PROFESSOR FRANCES BAIRSTOW.

6.22 INSTITUTE OF ISLAMIC STUDIES

cGill University's Institute of Islamic Studies is concerned with the disciplined study f Islamic civilization throughout the scope of its history and its geographical spread. gives attention to the origins of Islam, to the rise of the civilization in which Islamic ith was the vivifying factor, to the forces which shaped the civilization and the

changes it has undergone. It is also concerned with the contemporary dynamics
the Islamic world as Muslims seek to relate their heritage from the past to the radic
situation of modernity.

Director — PROFESSOR C. J. ADAMS.

1.6.23 **JEWISH STUDIES PROGRA**

This Program was established in 1968 on an interdisciplinary basis. The aims of t
program include making Jewish culture and thought available to students throu
courses within several departments as well as to those students who seek a measu
of specialization. The Program courses fall under two categories — those which a
primarily devoted to Jewish material, and those which are secondarily so concerne
An Honours B.A. and a B.A. with Major in Jewish Studies are available.

Chairman. — PROFESSOR E. V. ORENSTEIN.

1.6.24 **CENTRE FOR LEARNING AND DEVELOPMEN**

The Centre for Learning and Development was established in 1969 to help improv
the learning environment, teaching practices and learning methods at all levels
education. At present its activities focus on university education and include dissem
nation of relevant information, consultation, workshops, and research.

Director — PROFESSOR M. L. GOLDSCHMID.

1.6.25 **McGILL MAGNET LABORATOR**
Longueuil, Qu

This laboratory contains facilities for the production of intense magnetic fields, bo
continuous and pulsed, for the use of research workers whose scientific programs ca
benefit from their use.

Director — PROFESSOR D. R. STEVENSON.

1.6.26 **MANAGEMENT INSTITUT**

The Management Institute, an ancillary operation of the Faculty of Management, in
plements the Faculty's policies regarding continuing education for business. It offe
courses and seminars designed to help middle and senior management people kee
abreast of current developments in analytical and decision-making techniques, and
provide executives with a better appreciation of the integrative problems of gener
management.

Director — PROFESSOR R. N. MORRISON.

1.6.27 **MARINE SCIENCES CENTR**

The Centre is interdepartmental in scope, emphasizing the interdisciplinary nature
the science of oceanography. Excellent laboratory and library facilities are availabl
and opportunities for field work exist in the Arctic, the Gulf of St. Lawrence, the Can
dian eastern seaboard, and at the Bellairs Research Institute in Barbados. Speci
research interests include the physics of sea ice, the energy exchange between atm
sphere and hydrosphere, marine climatology, the dynamics of sea water, marin
bacteria, growth and life cycles of marine organisms, marine productivity, marin
biogeography and sedimentation.

Chairman — PROFESSOR B. F. d'ANGLEJAN.

1.6.28 **INSTITUTE FOR MINERAL INDUSTRY RESEARCH**

Research at this Institute consists of rock penetration studies, studies in frozen ground
and all aspects of the mining environment, including dust, ventilation, noise an
underground illumination.

Director — To be appointed.

1.6.29 **MONTREAL NEUROLOGICAL HOSPITAL AND INSTITUTE**

The Montreal Neurological Institute and Montreal Neurological Hospital are concerned
with undergraduate and graduate teaching in neurology, neurosurgery and the neuro
sciences, reasearch in basic and clinical sciences related to the nervous system, and
clinical care for patients with disorders of the brain and nerves.

Director — PROFESSOR WILLIAM H. FEINDEL.

1.30 MORGAN ARBORETUM: Macdonald College

tablished in 1947 and located at Macdonald College, the Arboretum has 600 acres woodland devoted to the study of woodlot management and the place of private restry in the eastern Canadian economy; the study of forest values and their con-rvation; teaching, research, demonstration, and conservation education. About 100 res have been planted in reforestation projects involving many coniferous and oad-leaved species. In addition, the Arboretum has an excellent collection of speci-ens of Canadian and foreign trees and shrubs.

Curator — PROFESSOR J. D. MacARTHUR.

1.6.31 INSTITUTE OF PARASITOLOGY

cooperative venture of the National Research Council and the University for the udy of parasitology in man and animals. It also cooperates with public authorities the practical applications of parasitology. It accepts qualified students who wish proceed to the M.Sc. or the Ph.D. degree. The Institute is housed at Macdonald ollege, Ste. Anne de Bellevue, near Montreal.

Director — PROFESSOR K. G. DAVEY.

1.6.32 INSTITUTE OF PATHOLOGY

he Institute is active in a broad research program into the biology of disease. The taff are individual investigators in their field of choice which includes the nature of onnective tissue in health and disease, respiratory disease, cardiovascular diseases, ver disease, haematologic disease and cancer.

Director — PROFESSOR R. H. MORE.

1.6.33 PHONETICS RESEARCH LABORATORY

esearch in acoustic phonetics and speech perception. Spectrographic analysis of peech, production of synthesized speech by means of an Electronic Vocal Analog. anguages investigated include English, French, Cree, Mohawk, Czech, Hungarian.

Director — PROFESSOR ANDRE RIGAULT.

1.6.34 PULP AND PAPER RESEARCH INSTITUTE OF CANADA

eparately incorporated non-profit research organization affiliated with McGill Univer-ty and also with Canadian Pulp and Paper Association and Canadian Department of orestry but with its own board of control. Supported by Canadian pulp and paper ndustry. Principal field of research: pulp and paper technology, including woodlands esearch, mechanical and chemical pulping, paper making, process control, product uality and environmental pollution. Also provides facilities to graduate students work-ng in various departments of McGill University on research projects of interest to the ulp and paper industry.

Director — DR. PIERRE R. GENDRON.

1.6.35 SHASTRI INDO-CANADIAN INSTITUTE

McGill University is a founding member of the Shastri Indo-Canadian Institute, a co-perative, voluntary organization, incorporated in Ottawa, whose members are the National Library and Canadian colleges and universities with an interest in Indian tudies. Its objectives are to enhance the mutual understanding between India and Canada by supporting and promoting development of Indian Studies at Canadian in-titutions of higher learning. This is presently being done mainly by the provision of ellowships for persons residing in Canada to conduct scholarly research in the human-ties and social sciences, and by the acquisition of Indian publications for scholarly se in Canada, and by summer programs to introduce undergraduates and school eachers to the field.

Executive Director — PROFESSOR R. W. STEVENSON.

1.6.36 SOCIAL SCIENCES STATISTICS LABORATORY

The Laboratory is intended to promote quantitative teaching and research in the Social Sciences. The laboratory's facilities include a programmer and a terminal.

Director — PROFESSOR J. DANIEL KHAZZOOM.

1.6.37 **SOIL MECHANICS LABORATOR**

Research interests include fundamental soil mechanics, soil-water interaction, therm soil properties and mechanics, soil dynamics and soil-structure interaction, soil stab ity and constitutive behaviour, mobility and trafficability, and other related problem in soil engineering.

Director — PROFESSOR RAYMOND N. YONG.

1.6.38 **McGILL SUB-ARCTIC RESEARCH LABORATOR Schefferville, Queb**

This Laboratory at Schefferville in the centre of Labrador-Ungava provides facilities f research in most aspects of the environment. There is a resident director and pe manent staff, plus a research group of faculty and graduate students.

Director — PROFESSOR F. H. NICHOLSON.

1.7 UNIVERSITY LIBRARIES

The University libraries include the McLennan Library, the Redpath Library and variou Faculty and Departmental libraries in other buildings and the library at Macdona College in Ste. Anne de Bellevue. The McLennan Library houses the main researc collections for humanities and the social sciences, while the Redpath Library provide expanded facilities for the undergraduate library, the Blacker-Wood collection and th Blackader-Lauterman collection. The libraries of McGill now contain more tha 2,700,000 items and receive 16,000 serial titles, many Government publications an transactions of various literary and scientific societies. The McLennan Library is ric in early printed books, in Canadiana, including the Lande Collection, and in ra pamphlets of the sixteenth to eighteenth centuries. It has special collections of Davi Hume, Rousseau, Rilke, Blake, Napoleon, Stephen Leacock and Rudyard Kipling, th Stearn Library of books and puppets, illustrating the history of the marionette theat of all nations, and the William Colgate collection devoted to typography.

The McLennan Library

1) THE MAIN LOAN AND RESEARCH COLLECTION, concentrated on the social science and humanities as well as other subjects — monographs, journals, document microfilms.
2) THE REFERENCE COLLECTION of encyclopaedias, dictionaries, bibliographical aids indexing and abstracting services, etc., is located on the main floor.
3) A CURRENT PERIODICALS READING ROOM housing approximately 2,400 titles i on the second floor.
4) A GOVERNMENT DOCUMENTS COLLECTION AND READING AREA is located o the second floor.
5) A RARE BOOKS AND SPECIAL COLLECTIONS DEPARTMENT including a readin room is on the street floor. The Lande Collection of Canadiana is on the fourth floo

The Redpath Library

1) THE UNDERGRADUATE LIBRARY. This is an open access circulating collection o approximately 100,000 items. Services of the U.L. include Reference, Reserves Circulation and a Periodicals Reading Room. The Undergraduate Library occupie the basement, street and main floor levels.
2) THE BLACKER-WOOD LIBRARY OF ZOOLOGY AND ORNITHOLOGY is on the second floor. This is an internationally known collection of some 68,000 items.
3) THE BLACKADER-LAUTERMAN LIBRARY OF ARCHITECTURE AND FINE ARTS occupies the entire third floor and houses approximately 34,000 items, numerous periodicals and architectural drawings.
4) THE AUDIO-VISUAL ROOM AND DROP-IN CENTRE are located on the second floor. The Audio-Visual Room is furnished with 225 carrels equipped with audio-visual devices such as slide projector, tape recorder, filmstrip and super-8-loop projectors and television screens.

epartmental and Other Libraries

THE BOTANY AND GENETICS LIBRARY in the Stewart Biological Sciences Building rves some of the needs of the Biology and Psychology Departments. It contains more an 13,000 books, periodicals, government publications and pamphlets.

THE FACULTY OF DENTISTRY LIBRARY is located in the Strathcona Anatomy and ntistry Building and provides 8,400 books and periodicals for faculty and student use.

THE EDUCATION LIBRARY, housed in the Education Building, contains approximate- 84,000 items together with a Curriculum Laboratory, housing tapes, films and other aching aids and a collection of children's books.

THE ENGINEERING LIBRARY of 28,000 items contains an extensive collection of oks, reference material and periodicals in the fields of civil, electrical and chemical gineering for the use of undergraduates, graduate students and faculty in Engineer- g. It is housed in the Macdonald Engineering Building.

THE SCHOOL OF NURSING LIBRARY contains approximately 20,000 volumes and 2 periodical titles. Although the emphasis is on nursing literature, the collection flects the entire curriculum, including economics, education and the social sciences. e Library is located in Wilson Hall.

THE INSTITUTE OF ISLAMIC STUDIES LIBRARY contains approximately 66,000 items d a good collection of journals dealing with many aspects of the Muslim world past d present, with particular emphasis on the Humanities. About one half of the works e in English and other Western languages, and there is a good collection in Arabic, rsian, Turkish, Indonesian, and Urdu. It is located in the Leacock Building.

THE LAW LIBRARY contains over 142,000 items, including virtually all Canadian orks, and the principal law reports of the United Kingdom, France and the United ates, as well as a selection of reports from elsewhere. It is located in Chancellor y Hall.

THE GRADUATE SCHOOL OF LIBRARY SCIENCE LIBRARY, on the street floor of e McLennan Library, contains over 74,000 volumes of books and journals in the fields publishing and library science.

THE MANAGEMENT LIBRARY on the second floor of the Samuel Bronfman Building ntains more than 165,000 items in the fields of management, economics, industrial lations and business.

THE MATHEMATICS LIBRARY in Burnside Hall contains some 190 journals as well as me books devoted to advanced theoretical mathematics.

THE MEDICAL LIBRARY in the McIntyre Medical Sciences Building contains over 2,000 items and receives approximately 2,000 current journals. This library is ted for its collection in the field of Ophthalmology and its retrospective collection of ropean medical publications. It is open to all who have need to use its collections.

THE FACULTY OF MUSIC LIBRARY contains some 24,000 items, including reference oks and periodicals, scores, tapes and records with listening facilities for records d tapes. The Library is located in the Strathcona Music Building.

THE OSLER LIBRARY OF THE HISTORY OF MEDICINE contains a collection of about ,000 items in the history of medicine and allied science, and has, as a nucleus, the 000 volumes, bequeathed to McGill by one of its most famous pupils and teachers, r William Osler. It is especially this portion which is rich in 15th, 16th, 17th, and 18th ntury medical books. The Library is constantly adding to the collection, especially w books on the history of all aspects of medicine and medical people. It is located the third floor of the McIntyre Medical Sciences Building. Undergraduates and all erested persons may use the Library.

THE PHYSICAL SCIENCES LIBRARY houses the Baillie Library of Chemistry, the N. Shaw Library of Physics, the Mining, Metallurgy, Geology and Chemical Engineer- g collections and contains the greater part of the University's collection in the physical iences. It is located on the main floor of the Frank Dawson Adams Building, and uses in excess of 81,000 volumes of books, periodicals and government publications.

THE RELIGIOUS STUDIES LIBRARY, located in the William and Henry Birks Building, ntains 55,000 items in the fields of theology, philosophy, church history, and lated subjects.

THE SCHOOL OF SOCIAL WORK LIBRARY contains nearly 27,000 items in the fields

of social work, community organization, social sciences, and psychology. While t collection is mainly for the use of students of the School other students may read the Library. It is located on the main floor of Wilson Hall.

THE MACDONALD COLLEGE LIBRARY at Ste. Anne de Bellevue contains sor 196,000 volumes in the fields of agricultural and environmental sciences includi food science.

1.8 UNIVERSITY MUSEUMS

1.8.1 THE PETER REDPATH MUSEUM OF NATURAL HISTOR

Built in 1882, this was the first specially designed museum building in Canada. extensive collections, begun in the 1850's by the founder, Sir William Dawson, ha been augmented over the years by gifts and bequests and are constantly expandi through curatorial field research. They are used for basic reference in graduate a undergraduate teaching.

The Museum's holdings, which now include over a million scientific specimens, a especially rich in invertebrate palaeontology, specific areas of vertebrate palaeontolog palaeobotany, malacology, and ornithology. Particularly notable are the Carpent Collection of Mollusca, the Dawson Collections of Palaeontology, and the Ferri Collection of Minerals.

The Museum has close ties with professional scientific societies in many relat disciplines and is also active in national and international museum associations.

1.8.2 THE McCORD MUSEU

This museum with one of the leading collections of Canadiana in the country, ster from the bequest of David Ross McCord in 1919. Notable accessions, including t Notman Photographic Archives, have been added over the years illustrating the histo of Canada in general and Quebec and Montreal in particular. Since 1936 the collectio have been in storage and available only for research, but they are now in the Museun new quarters at 690 Sherbrooke Street West and open to the public on Fridays, Sat days and Sundays from 11 a.m. to 6 p.m. Research is by appointment only, fr Monday through Thursday.

1.8.3 THE LYMAN ENTOMOLOGICAL MUSEUM AND RESEARCH LABORATOR

Located on the Macdonald College campus, this institution has the largest inse collection of any Canadian University, and is second in both numbers of species a specimens only to the Canadian National Collection of insects, Ottawa. The collecti is world-wide in scope. A relatively small part is used directly in teaching since th museum is primarily engaged in research, particularly on the important Order Ortho tera (grasshoppers and related groups), as well as on soil microarthropods and fres water insects. Other groups are also well represented. The museum has an extensi entomological library and the equipment necessary for the modern techniques n employed in taxonomic research. It is not generally open to the public but interest parties may visit by appointment. Very little space is available for display purposes.

1.8.4 THE McGILL UNIVERSITY HERBARIU

Established in 1820 and formerly housed in the Stewart Biology Building, the McG Herbarium was combined with the Macdonald College Herbarium during the summ of 1972 to establish the 100,000 specimen McGill University Herbarium, Macdona Campus of McGill University. It contains some of the earliest collections made Canada. The collection is devoted to Quebec and eastern Canadian flora but specime from the Arctic and sub-Arctic of Canada, Greenland, Sweden, Lappland and Siber are well represented. Research facilities are available, on request of the Curator, t any student or botanist working on northern plants.

1.8.5 OTHER COLLECTIONS

In addition to the above there are other collections and exhibits of a specialized nature ordinarily open only to students but to which access may be gained by application t the department concerned. These include the Anatomical, Medical, Pathological an Zoological Museums. Appointments for conducted tours may be made to see th Rutherford Collection of Experimental Physics by telephoning 392-5130.

2 GENERAL INFORMATION

1 PUBLICATIONS

The following official publications are issued by the University.

ANNOUNCEMENTS OF FACULTIES AND SCHOOLS
General Announcement
Undergraduate Scholarships, Bursaries, Prizes, Medals, and Loan Funds
Postgraduate Awards, Fellowships and Bursaries
Faculty of Arts, Faculty of Science
Centre for Continuing Education
Faculty of Dentistry
Faculty of Education
Faculty of Engineering (including School of Architecture and School of Computer Science)
French Summer School
Faculty of Graduate Studies and Research
Faculty of Law
Graduate School of Library Science
Macdonald College (Faculty of Agriculture and School of Food Science)
Faculty of Management:
Bachelor of Commerce
Master of Business Administration
Faculty of Medicine
Faculty of Music
School of Nursing
School of Physical and Occupational Therapy
Preparatory School of Music
Faculty of Religious Studies
Renseignements Généraux
School of Social Work
Summer Session

ANNUAL REPORT

DIRECTORY OF STAFF (Faculty and administrative staff. Limited distribution.)

FACULTY HANDBOOK (General information for faculty members about McGill's environment, emphasizing aspects useful to newcomers. Guide to the University and its procedures.)

GUIDANCE COUNSELLOR'S HANDBOOK (Information on admissions and degree programs for counsellors in colleges and high schools.)

McGILL REPORTER (Official newspaper of news and review.)

McGILL STUDENTS' GUIDE

2 RESIDENTIAL FACILITIES

2.1 TYPES OF RESIDENCES

McGill offers three types of residence accommodation:

1. Royal Victoria College houses graduate and undergraduate women.
2. Douglas Hall houses both men and women, and is exclusively a graduate residence.
3. Gardner, McConnell and Molson Halls each house both men and women, most of whom are undergraduates, although some graduate students also choose to live there.

2.2.2 LOCATI

The Co-educational Residences are located on the wooded slopes of Mount Roy adjacent to the University playing fields. They are approximately two blocks away fr the main campus, and a ten-minute walk from the centre of downtown Montreal.

Royal Victoria College is on campus close to the major shopping and cultural are of the city. Bus and subway stops are nearby.

2.2.3 ACADEMIC STA

The academic staff of each hall consists of a Residence Director or Warden, Assista Directors, and Residence Fellows or Dons. One of the main functions of the academ staff is to get to know students individually and, if a student requests it, to give advi on personal or academic matters.

2.2.4 ROOMS AND FACILITIE

Except for a few rooms at Royal Victoria College all rooms are for single occupan and in each, besides a bed and bed-linen, there is a desk, chair, chest of drawers a closet. Linen and towels are changed weekly. The co-ed residences have maids w clean the rooms, but in all halls residents are expected to make their own beds a tidy up. Each hall has coin-operated automatic washers and dryers, as well as ironi facilities; an outside dry cleaning firm also calls regularly at the residences. Telephon located on each floor are operated through hall switchboards; in addition, each roo is wired for a private telephone. There is plenty of storage space for ski equipmen trunks, and suitcases in every hall. Limited parking space is available in the co-e complex only.

The halls have TV, music, sewing, and stereo rooms, and a well-stocked libra of magazines, books and newspapers. The co-ed residences have a calculating a typing room, and R.V.C. has the use of a swimming pool located within the building.

2.2.5 MEAL SERVIC

Residents at Molson, McConnell and Gardner halls take their meals together in a larg centrally located dining hall. Douglas Hall and the Royal Victoria College have the own dining rooms. Students may choose either a seven or five day meal plan. Ba lunches are available. There are kitchenettes on every wing of the co-ed residence where residents may keep food and prepare hot or cold snacks at any time. In additio vending machines in every hall dispense soft drinks, sweets and pastries. Student in the co-ed residences can rent small refrigerators for their rooms.

2.2.6 DIET

Limitations of facilities do not permit catering for special religious diets in the dinin halls, although the kitchens will seek to meet special needs whenever possible. Temporary diets because of sickness may be prepared on doctors' orders.

2.2.7 HEALTH

In case of illness residents are usually referred to the University Health Service nearby. However, there is a nurse on duty every day in the residence dispensary or infirmary, and live-in nurses who keep evening office hours and who are also available for emergency treatment any time.

2.2.8 GOVERNMENT

Each hall has a Residents Council, elected yearly by the residents at a designated time during the academic year. It is the job of Council to gather hall opinions, set policy, supervise financial affairs, and organize sporting and recreational activities within the residences.

2.2.8.1 GUIDELINES

McGill's residences are run for the convenience and advantage of the students living in them. What "rules and regulations" do exist are decided upon and administered by the students themselves. Basically, living together in any community requires just a single rule: respect for the rights of others. In each hall there is a House Committee which is elected from the student body at the beginning of each year to deal with any problems that may arise.

2.2.9 APPLICATION AND ADMISSIONS

Please note that the procedure governing residence admissions is entirely separate from that of University admissions. Application forms for both the Royal Victoria College and the Co-ed Residences are mailed out with all academic application forms. Residence application forms should be returned to the appropriate address below:

Residence Manager
Royal Victoria College
3425 University Street
Montreal 112, Québec

The Secretary
Co-ed Residences, McGill University
3935 University Street
Montreal 112, Québec

Owing to a shortage of housing, the University cannot guarantee every student a place in residence. There is a Housing Service to assist those seeking suitable off-campus housing.

Residence applications should be returned as soon as possible, preferably before April first.

McGill residence admission policy extends to all students — Montreal area students as well as out of town students, on a first-come, first-served basis.

2.3 ROOM AND BOARD CHARGES IN UNIVERSITY RESIDENCES

The fees for room and board in University Residences for the 1973-74 session are as quoted below and are subject to the conditions prescribed.

The University reserves the right to make changes without notice in the published scale of fees if circumstances so require.

2.3.1 DOUBLE ROOMS

Sessional fees for a limited number of double rooms in Royal Victoria College are $50.00 lower than the rates indicated below.

2.3.2 EXCLUSIONS

1) The sessional fees quoted below for Room and Weekday Meals do not include meals on the following holidays: September 3, Labour Day; October 8, Thanksgiving; March 1, Mid-Term; April 12 & 15, Easter; May 20, Victoria Day.

2) The sessional fees quoted below do not include meals during the Christmas recess (dates to be announced) and some dining facilities will be closed during this period.

2.3.3 MEAL PRICES

Residents may obtain meals, in addition to those covered by sessional fees, at the following student rates:

Breakfast	$ .85
Lunch	1.35
Dinner	1.65

Guests will be required to pay the full posted meal prices at all times

2.3.4 GRADUATING STUDENTS

Graduating students wishing to remain in residence until the morning following their Convocation will be permitted to occupy a room without additional charge. Due to other residence commitments, such extended stays may require a move to another room, possibly to another residence building. Any meals taken during these extended stays will be charged on an individual basis.

2.3.5 EXTENDED STAYS

Because of registration, examinations or other special circumstances, residents may be permitted to occupy their rooms for a limited time before or after the period covered by their sessional fees. The charges for such extended stays are $2.85 per day, excluding meals and $5.40 per day, including meals. One of these options must apply for the full period of the extended stay. Payment for extended stays must be made in advance for the duration of the stay or a period of one week, whichever is less.

2.3.6 SESSIONAL FEES FOR SINGLE ROOMS IN UNIVERSITY RESIDENCE

***(Room and board charges, key deposit and residence activities fee**

The following sessional fees may be paid in two instalments:

Faculty	*From Lunch*	*To Breakfast*	*Room and All Meals*	*Room and Weekday Meal*
Medicine				
1st year	Sept. 3	June 8	$1,435.	$1,265.
2nd year	Sept. 3	June 29	1,530.	1,350.
3rd year	Sept. 3	May 31	1,395.	1,230.
4th year	Rates on request			
Dentistry				
1st year	Aug. 28	May 25	1,395.	1,230.
2nd year	Sept. 3	June 15	1,475.	1,300.
3rd year	Sept. 3	May 11	1,290.	1,140.
4th year	Sept. 3	May 11	1,290.	1,140.
Standard academic year	Sept. 10	May 2	1,205.	1,065.

Subject to prior approval, students writing regular examinations during the week of May 2–May 8 will be accommodated, on the same conditions as those of their sessional contract, without additional charge up to and including breakfast on the day following their last examination.

*A limited number of students whose academic programs make it difficult for them to dine in the residences, may be accommodated on a room only basis at lower sessional fees which are available on request.

2.3.7 OTHER REGULATIONS

Students accepted for residence must pay a deposit of $50.00 which will be deducted from their residence fees for the second term. It will be refunded only if written notification is received before July 1, or if the examination results prevent registration.

2.3.8 PAYMENT OF FEES

Entering or transfer students: Fees may be paid in two instalments — the first within ten days after registration, and the second before January 15.

Returning students: First instalment must be paid August 23 and the second before January 15.

The sessional fees include a house fee of $10.00 collected by the University on behalf of the Residents' Council of each hall, and a $5.00 key deposit which is refunded at the end of the session.

2.4 UNIVERSITY HOUSING FOR MARRIED STUDENTS

The University maintains a limited number of apartment units in several nearby locations for married students. As the demand for these apartments greatly exceeds the number of vacancies occurring each year, applications are restricted to married, full-time undergraduate students and graduate students who have not yet attained the Ph.D. or M.D. degree or equivalent. Further information and application forms may be obtained from the Real Estate Manager, McGill University, P.O. Box 6070, Montreal 101, Que.

2.5 SCHOLARSHIPS AND FINANCIAL AID

2.5.1 ENTRANCE SCHOLARSHIPS

In general, the University's system of entrance scholarships is designed to enable good students from all parts of Canada to attend McGill. Students who have obtained a high first class academic standing, or who expect to obtain such standing in their examination results, should apply for an entrance scholarship by completing the Application for Entrance Scholarship form. These forms may be obtained from the Admissions Office and must be submitted before March 1.

The policy of the University is to recognize and honour scholarship. When a student has been selected for an award and is in financial need, it is the further policy of the University to meet that need as far as resources permit. In order to be considered for a scholarship of major financial value, the applicant must complete the Application for Financial Aid. The amount and nature of financial aid are determined by the Student Aid Office.

Although there are some funds available in certain disciplines which enable the University to award scholarships of major value, in general a student is expected to apply first to his own province and to accept the maximum loan and bursary aid offered by this province before receiving any augmentation of his McGill Scholarship.

2.5.2 PROVINCIAL AND FEDERAL AID

In all cases, a basic qualification is that the applicant must be a Canadian citizen or a Landed Immigrant with one year's residence and domicile in the province to which he applies.

In all provinces, except Quebec, the provincial authority listed below administers the Canada Student Loan Plan (Federal) as well as their own programs. The addresses are as follows:

Quebec: Apply for a Quebec registration card, after May 15, at the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec.

Ontario: As the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec, is a recognized Ontario Student Awards Office, it is recommended that all Ontario students make their applications through this facility.

New Brunswick: Department of Youth & Welfare, Fredericton, N.B.

Yukon Territory: The Students Financial Assistance Awards Committee, c/o Superintendent of Schools, Box 2703, Whitehorse, Yukon.

Northwest Territories: c/o Education Division, Department of Northern Affairs & Resources, 150 Kent Street, Ottawa, Ontario.

For the Provinces of Newfoundland, Prince Edward Island, Nova Scotia, Manitoba, Saskatchewan, Alberta, British Columbia: write to the Provincial Department of Education.

2.5.3 BURSARIES AND LOANS

These may also be available to non-scholarship students through the Student Aid Office if other sources of aid are genuinely inadequate.

2.5.4 STUDENTS FROM SCHOOLS OUTSIDE CANADA

Students from schools outside Canada are ineligible for entrance scholarships. They are expected to present evidence to immigration authorities that they have adequate funds for their studies in Canada. All who wish to study in Canada should consult the Ministry of Education in their home country for financial assistance.

SUMMER WORK AND PART-TIME WORK. Non-Canadian students must apply to the Canadian Immigration authorities for permission to obtain employment.

2.5.5 **UNITED STATES CITIZEN**

The National Defence Loan is not tenable in Canada, but several states have long te loan plans which are tenable here. Students should inquire at the Department Education in their state capital and also at local banks which may operate a High Education Loan Plan.

2.5.6 **GRADUATE FELLOWSHIP**

Inquiries about graduate fellowships, assistantships, etc. which are open to graduate of other universities as well as of Canadian universities should be addressed to th Faculty of Graduate Studies and Research.

2.6 STUDENT SERVICES

2.6.1 **COUNSELLING IN THE FACULTIES OF ARTS AND OF SCIENCE**

2.6.1.1 **Freshman Orientation Servic**

The Freshman Orientation Service is available to all beginning undergraduate students entering the first year of the university in the Faculties of Arts, Education, Management, Science, and the School of Physical and Occupational Therapy. Events for the one day session include group meetings, campus tours and a social hour.

The service operates five days a week, Monday to Friday, 9:00 a.m. to 5:00 p.m., from mid-August until registration. The Director, Mrs. Willis, is located in Dawson Hall, Room 109.

2.6.1.2 **Pre-Registration Counselling and General Course Counselling**

Students are urged to make full use of the advice and counselling offered by the Faculties of Arts and Science. Prospective students who are undecided as to a choice of program or orientation should consult an adviser in the Student Affairs Office, Dawson Hall. These advisers are ready to provide information and advice on courses and programs of study. Incoming students are asked to contact the office as early as the month of March.

Students who have decided on their program of studies, and who wish to proceed directly to an Academic Adviser for completion of a Study Plan Form may do so. (Consult the Calendar of Faculties of Arts and Science.)

The advisers in the Student Affairs Office are available to undergraduates for consultation throughout the academic year. Experienced personnel answer questions and offer guidance each weekday from 9:00 a.m. to 5:00 p.m.

2.6.2 **COUNSELLING IN THE FACULTY OF ENGINEERING**

An academic counselling service is available for students in the Faculty of Engineering (including the School of Architecture). Members of staff and selected students working together provide assistance in academic matters and can give helpful advice in dealing with other problems. All students seeking assistance and advice in coping with personal problems should consult the Associate Dean (Student Affairs), Faculty of Engineering, Macdonald Engineering Building.

2.6.3 **COUNSELLING IN OTHER FACULTIES**

The other smaller Faculties have arrangements for providing advice and guidance to their own students. Further information should be obtained through the office of the Dean of the Faculty in which they are registered.

2.6.4 **BOOKSTORE**

The McGill University Bookstore, located in the Bronfman Building at 1001 Sherbrooke Street, West, performs an essential service for the academic community. It provides a comprehensive stock of current textbooks, reference material and academic supplies as well as items of general interest. Although all sales are at normal retail prices, the cost of maintaining adequate stocks of required material is high and the Bookstore is a non-profit operation.

2.6.5 EXTRA-CURRICULAR ACTIVITIES

Complete details of all extra-curricular activities may be found in the *Student Handbook*, published yearly by the Students' Society.

The *Student Handbook* lists over 250 activities and clubs which students may join. These include international clubs, religious groups, political clubs, fraternities, communications (Radio McGill) and some 50 miscellaneous groups (such as science clubs, literary, theatrical and musical societies, chess and bridge clubs, and the Voyageurs' Society).

ATHLETICS. McGill's facilities for athletics, physical education, and recreation are centred in the Sir Arthur Currie Memorial Gymnasium, the Percival Molson Memorial Stadium and the McGill Winter Stadium. Sports facilities in the gymnasium include basketball, squash, badminton, and volleyball courts; swimming pool; facilities for gymnastics, wrestling, fencing, judo, and track. For the use of all women students of the University, staff and graduates, the Garfield Weston Swimming Pool at Royal Victoria College is available.

The physical education programs for men and women provide instruction for students in various sports.

Numerous intramural and recreational sports clubs provide opportunities for students to participate in sports for relaxation and to represent their faculty or residence on intramural teams of their choice.

On the intercollegiate level McGill participates in sports sponsored by the Quebec Universities Athletics Association and the Ontario Women's Intercollegiate Athletics Association.

For a complete description of the McGill athletics facilities and intercollegiate, intramural, and recreational sports programs, see the *Student Handbook*.

See also "Health Service" below.

STUDENT ORCHESTRA, CHOIR, AND WIND ENSEMBLE. The Student Orchestra and Choir of the Faculty of Music as well as the McGill Wind Ensemble have some vacancies for amateur musicians. Advanced instrumentalists (strings, winds, harp, percussion), or experienced choir singers who would like to become regular members of the Orchestra, the Choir, or the Wind Ensemble, should contact the office of the Faculty of Music for further information (Telephone 392-4501).

Students interested in joining the McGill Choral Society should contact the McGill Students' Society.

2.6.6 FRESHMAN RECEPTION

A Freshman Reception Committee, formed by the students in order to welcome freshmen to McGill, organizes a program of activities to introduce new students to campus life. A detailed schedule of events is mailed to all incoming students.

2.6.7 HEALTH SERVICE

When students enrol at McGill University they have available to them a full range of medical service provided by the McGill University Health Service. Medical clinics operate daily, five days of the week from 9:00 a.m. - 5:00 p.m. A physician is always on call at night and on weekends and he can be contacted by dialing the Health Service number. There are both male and female physicians on staff as well as a competent staff of college health nurses.

This service is available to all full-time students, undergraduate and postgraduate. Post-doctoral students, and diploma course students and part-time students are welcome to consult us if a health problem arises but the full range of services may not be available to them. Students are asked to bring their Medicare cards or equivalent. *All information is completely confidential and forms no part of any "University record".*

Many students are seen for discussion about sexual life, contraception, drug problems and venereal disease. We urge students who suspect that they have V.D. to consult us because to neglect this condition can be most damaging. We invite students who are concerned about a drug problem to contact the Health Service and most particularly the Mental Health Section.

Part of the Health Service consists of a *Mental Health Service* which makes availa to students psychiatric and psychological help. Students who wish to come are advi to make an appointment. If a psychological emergency arises the student should co directly to the Mental Health Service or phone immediately. All contacts by stude with their service are kept completely confidential.

PARTICIPATION IN ATHLETICS: A student in any academic year wishing to particip in heavy contact athletics, e.g. football, will be required by the Athletics Department undergo a physical examination at the University Health Service. A student who h received medical attention for an illness or accident must be declared fit by the Hea Service before he may again participate in athletics.

In order to ensure medical coverage while a student at McGill, Canadian stude from provinces other than Quebec are advised to consult with the medicare and hospi insurance offices of their own province before coming to McGill. This is particula important since residents of other provinces are not covered by Quebec Medicare a Hospitalization while studying at McGill.

Non-Canadian students, whether undergraduate or postgraduate, are obliged enrol in a medical and hospital insurance program. Consequently, the student and h dependents are covered to a large extent for medical and hospital expenses during th academic year. Information concerning this program can also be obtained at th general office of the Health Service.

Location: **517 Pine Avenue West**

Appointment and General Office	392-5441
Director: Dr. J. G. Lohrenz	392-5444
Mental Health Section	392-5449

Location: **Macdonald College**

Appointment and General Office	453-6851

2.6.8 PARKING ON UNIVERSITY GROUNDS

The University does not permit students to park automobiles or motorcycles on the Montreal campus. Limited parking at monthly rates is available for students living in residences.

Parking at Macdonald College is subject to restrictions. Further information may be obtained from the office of the Vice-Principal of the College.

2.6.9 STUDENT PLACEMENT

The Canada Manpower Centre, located at 3574 University Street, provides a comprehensive placement service to McGill students in the areas of part-time, summer and permanent employment. The principal aims of the service are to encourage employers to make available a wide variety of job opportunities to McGill students; to assist students in finding suitable employment, by providing information on the labour market and arranging interviews with prospective employers; to encourage students to prepare for a career by doing their own research into the labour market, through library facilities, films, seminars, plant visits, summer and part-time jobs.

2.6.10 HOUSING SERVICE

Information concerning housing outside the University may be obtained from the office of the Dean of Students.

2.6.11 STUDENT COUNSELLING AND STUDENT AID

This office was established to provide a place where students of all faculties could discuss any problem confidentially. Referral to more specialized counselling is made where necessary.

Students from distant parts of Canada, and from distant lands, are especially invited to consult the office for help with their problems.

The Student Aid Office also handles all inquiries concerning financial assistance (see "Scholarships and Financial Aid", section 2.5).

.12 GUIDANCE SERVICE
522 Pine Avenue West

e Guidance Service is an open environment developed to complement the many her services the University provides for its members and to prepare them well in lvance for continuing their careers.

Guidance offers a psychological perspective on your personal, family, social and cational growth. Counselling is essentially an exploration in self knowledge, com- unication and discipline. It can help you respond to the combined stresses of personal d social change.

Psychological services are offered to help you critically evaluate the complex situa- ons facing you, decide upon a course of action, carry it into operation and learn om the consequences.

Such activities as self-review, counselling, psychotherapy, group encounter, psy- ological assessment and effective reading can add to your university experience and crease your personal flexibility.

The Career Information Library will provide you with information on personal justment, academic life, sociology of work and alternatives for further education in e collection of university calendars.

You may choose to browse around on your own, arrange one or two meetings, about n hour each, or spend many hours throughout your entire stay at University.

We invite you to evaluate us and make suggestions whether or not you participate. he services are free for members of the University and are also available to the public n payment of necessary fees. Full descriptive literature is available by request in erson, by phone or mail.

Location: 522 Pine Avenue West
General Information: 392-5119

3 ADMISSION

irector — PEGGY SHEPPARD, B.A. (S.G.W.U.), B.Ed.
dmissions Office
cGill University
.O. Box 6070
ontreal 101, Quebec

.1 GENERAL

he academic year at McGill runs from mid-September until early May, with approxi- nately two weeks' vacation at Christmas. The normal period of admission is in Septem- er; however, the University is considering a January admission for future years and nterested students should seek further information from the Admissions Office in September 1973.

The deadline for submission of applications is March 1 of the year for which the student wishes to apply. All applications must be accompanied by a non-refundable ee of $15.00 in Canadian funds payable by certified cheque or money order to McGill niversity.

Admission is selective, and students are reminded that fulfilment of the minimum equirements by no means guarantees acceptance.

Although our Admissions Officers are always pleased to meet prospective students, personal interview is not required for admission.

3.2 COLLEGE EQUIVALENT PROGRAM

McGill University is now phasing out its college equivalent program and 1972-73 wa the last session in which the first year of the program was offered; 1973-74 will be th final session for admission to the second year of the college equivalent program.

Students who have completed one year beyond Secondary V in an approved progra of study will be considered for admission to the second year of the college equivale program in 1973.

3.3 UNIVERSITY PROGRAM

Quebec students who have completed a CEGEP or college equivalent program an who have obtained the Diploma of Collegial Studies are eligible to apply for entranc to the first year of a three-year University program (90 credits) leading to one of th following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Commerce Bachelor of Science (Physical Therapy), Bachelor of Science (Occupational Therapy) Bachelor of Science in Nursing, Bachelor of Science in Agriculture, Bachelor o Science in Food Science, Bachelor of Education, Bachelor of Music, Bachelor of Civi Law (95 credits), Bachelor of Theology, Bachelor of Social Work; or to a three or four year program leading to the degree of Bachelor of Engineering, Bachelor o Science (Architecture), or Bachelor of Architecture. A university degree is required for admission to the Bachelor of Laws program.

Students who have completed an appropriate level of education outside the provinc of Quebec may be considered for entrance to a university program requiring three o four years of study (90 to 120 credits).

3.4 ENTRANCE QUALIFICATIONS

Quebec

Students who have completed high school at the Secondary V (Secondaire V) level in Quebec can no longer apply for admission to McGill University. All such students must seek entrance to a CEGEP and obtain the Diploma of Collegial Studies before applying for admission. Students who have completed an approved program of one year beyond the level of Secondary V are considered for admission to the second year of the collegial program.

Holders of the Diploma of Collegial Studies are considered for admission to the first year of an appropriate university program (90 credits).

Provinces of Canada other than Quebec

Entrance to the Faculties of Arts, Education and Management:

Ontario Grade 13 students may be admitted directly to a 90 credit university program if they have completed five subjects with an average of 70%. English should be included in the student's program; the four elective courses should be appropriate to the program which the student wishes to enter at McGill. Students wishing to enter the Faculty of Management must include mathematics as part of their Grade 13 program.

Students having only four subjects will be required to make up an additional six credits at McGill.

Students from provinces of Canada other than Quebec, Ontario* and Newfoundland who have completed Grade 12 with an average of 70% in appropriate subjects are considered for admission to a program requiring the completion of 120 credits.

Entrance to the Faculty of Science, the School of Nursing and the School of Physical and Occupational Therapy:

The programs in the Faculty of Science have been designed on the assumption that the student has a background in science equivalent to that provided by the Quebec Diploma of Collegial Studies in science; that is, that he has completed, or will complete at McGill, the equivalent of introductory college-level courses in biology, chemistry, physics, and mathematics. These courses are referred to as prerequisite courses, 3 credits being assigned to each full-year course. Mathematics A and B (Ontario) each count as 3 prerequisite credits. A maximum of 6 credits will be allowed for non-science academic courses.

Ontario Grade 13 graduates and students who have completed First year Science at Memorial University, Newfoundland, are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. Thus, a student who has completed biology, chemistry, physics, mathematics and one additional non-science academic course enters a university program requiring the completion of 90 credits (usually three years are required to complete the program).

Students from provinces of Canada other than Quebec, Ontario*, and Newfoundland who have completed Grade 12 with adequate standing in appropriate subjects are considered for admission to a university program requiring the completion of 120 credits.

*Exceptions are sometimes made in the case of Grade 12 students with an average of over 80% in appropriate subjects. Such students may be considered for admission to a program requiring the completion of 120 credits. This exception does not apply in the Faculty of Engineering where all Ontario students seeking entry must have completed Grade 13.

Entrance to the Faculty of Engineering:

Students with the appropriate qualifications may apply for entrance to the second year of the college equivalent program in the Faculty of Engineering. Upon successful completion of one year of study, they may proceed directly into the three-year university program in Engineering or apply for entrance to the School of Architecture. To determine eligibility for admission, the chart which follows should be consulted:

	Minimum Qualifications for Entrance to an Undergraduate Program (except Engineering)	*Minimum Qualifications for Entrance to Second Year of College Equivalent Program in Engineering*
Alberta	Grade 12	Grade 12
British Columbia	Grade 12	1st year University
Manitoba	Grade 12	1st year University
New Brunswick	Grade 12	1st year University
Newfoundland	1st year Memorial University	1st year University
Nova Scotia	Grade 12	Grade 12
Ontario	Grade 13	Grade 13
Prince Edward Island	Grade 12	1st year University
Saskatchewan	Grade 12	1st year University

Non-Canadian Applicants

Entrance to the Faculties of Arts, Education and Management:

High school graduates from the United States are admitted to an undergraduate program requiring the completion of 120 credits. All applicants should have followed academic programs designed for university entrance. Applicants to the Bachelor of Commerce program should present a strong background in mathematics. Students who have successfully passed Advanced Placement examinations in appropriate subjects with a grade of "3" or better will be granted some advanced standing. (In the Faculty of Arts, students with two or three suitable Advanced Placements may be admitted to a program requiring the completion of 90 credits).

GENERAL ANNOUNCEMENT

Students from the United Kingdom and Commonwealth countries may be admitted directly into a university program requiring the completion of 90 credits (three years) with five General Certificate of Education papers, at least two of which must be at the Advanced Level or with four G.C.E. papers, at least three of which must be at the Advanced Level. No subject may be written at both levels; an average grade of C or better is required. One of the five (or four) G.C.E. papers must be English Language. Applicants to the Faculty of Management should have Advanced Level results in mathematics.

Students with better than average results in five appropriate Ordinary Level papers PLUS one full year of formal schooling beyond Ordinary Level will be considered for entrance to an undergraduate program requiring the completion of 120 credits.

Entrance to the Faculty of Science, the School of Nursing and the School of Physical and Occupational Therapy:

The programs in the Faculty of Science have been designed on the assumption that the student has completed, or will complete at McGill, the equivalent of introductory college-level courses in biology, chemistry, physics, and mathematics. These courses are referred to as prerequisite courses.

Graduates from Grade 12 in the United States are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. An Advanced Placement science course is considered the equivalent of 6 prerequisite credits; a grade of 3 or better is required for Advanced Placement credit to be granted.

Students from the United Kingdom and Commonwealth countries are normally required to have completed examinations in five different G.C.E. subjects including English, chemistry, physics, and mathematics, at least two of which must be at the Advanced Level. Such students are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. Each G.C.E. Advanced Level paper in Science with a grade of C or better is considered the equivalent of ten prerequisite credits.

Students with better than average results in five appropriate Ordinary Level papers PLUS one full year of formal schooling beyond Ordinary Level will be considered for entrance to an undergraduate program requiring the completion of 120 credits. The five Ordinary Levels should include English, a second language, mathematics, and one of biology, chemistry or physics.

Entrance to the Faculty of Engineering:

Graduates from Grade 12 in the United States who have a strong academic program PLUS Advanced Placement results in mathematics and physics or one year of college may apply for entrance to the second year of the college equivalent program. A combined CEEB score of 3000 is also required. It is not possible to enter the Faculty of Engineering solely on the basis of high school results.

Students from the United Kingdom and Commonwealth may apply for admission to the second year of the college equivalent program in Engineering if they have passes in five G.C.E. papers at the Ordinary Level including English, a second language, mathematics, and physics or chemistry PLUS one full year of formal schooling beyond Ordinary Level, with preferably one or more papers at the Advanced Level with grades of "D" or better. Students with similar qualifications from other countries will be considered also for admission to the second year of the college equivalent program.

Students from the United Kingdom and Commonwealth may apply for admission to the university programs in Engineering and Architecture if they have passes in G.C.E. Ordinary Level papers as above and Advanced Level papers in mathematics, physics and chemistry with an average of "C" and no paper below "D".

National Certificates Accepted for Admission.

Some of the national certificates accepted for admission to McGill are listed below. Students should contact the Admissions Office for more specific information as to entrance requirements. Better than average grades are required for admission.

COUNTRY	CERTIFICATE
Argentina	Bachillerato Universitario
Australia	Higher School Certificate University Matriculation Certificate
Belgium	Certificat d'Humanités
Czechoslovakia	Vysvedceni o Maturitni Zkousce
France	Baccalauréat (2ième partie)
Germany	Zeugnis der Reife
Greece	Akadimaiko
Hong Kong	Advanced Level results
India	Bachelor's degree (with First Division standing)
International Baccalaureat	Certificate of Baccalaureat
Iran	Sixth Year Secondary Education Certificate
Israel	Matriculation Certificate
Italy	Diploma di Maturita Classica Diploma di Maturita Scientifica
Lebanon	Lebanese Baccalauréat (2ième partie)
The Netherlands	Getuigschrift (Gymnasium or Lyceum)
Norway	Examen Artium
Pakistan	Bachelor's degree (with First Division standing)
Poland	Swiadlectwo Dojrzalosci
United Arab Republic	General Secondary School Certificate
United Kingdom	Advanced Level results
Vietnam	Vietnamese Baccalauréat (2ième partie)
Yugoslavia	Chegoranctbo or Svedocanstvo

3.5 ADDITIONAL ENTRANCE REQUIREMENTS

1) Application for admission to the second year of the college equivalent or undergraduate programs (except Music) must be made on forms supplied by the Admissions Office BEFORE MARCH 1. Supporting documents should be sent as soon as they are available if they cannot be sent with the application.

2) STUDENTS IN CANADIAN HIGH SCHOOLS must write the tests of the Service for Admission to College and University (SACU). Application forms and information concerning these tests may be obtained through the schools or from:

SACU Test Administration
151 Slater Street
Ottawa, Ontario K1P 5N1.

3) STUDENTS FROM THE UNITED STATES must write College Entrance Examination Board tests; the two scholastic aptitude tests, the English Composition test, and two other achievement tests appropriate to the program which they wish to enter at McGill. Students from the Eastern United States may obtain information about the tests by writing to:

The College Entrance Examination Board
Box 592
Princeton, New Jersey 08540

Students from the West should write to:

The College Entrance Examination Board
Box 1025
Berkeley, California 94701

4) STUDENTS FROM OVERSEAS are advised to write CEEB or SACU tests to support their application.

5) APPLICANTS WHOSE MOTHER TONGUE IS NOT ENGLISH must submit acceptable evidence of facility in English. The following evidence is acceptable: The Test of English as a Foreign Language (TOEFL); The University of Michigan English Language test; the Certificate of Proficiency in English issued by the Universities of Cambridge and Michigan.

TOEFL is preferred by the University; it is administered by the College Entrance Examination Board and is easily available throughout the world.

Students who cannot obtain a TOEFL bulletin and registration form locally should write well in advance for them to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540, U.S.A.

3.6 TRANSFER STUDENTS

McGill University welcomes applications from students wishing to transfer from other institutions.

3.7 HEALTH REQUIREMENTS FOR NEW STUDENTS

All students after having been accepted by the University will receive a Medical Questionnaire complete with a return envelope addressed to the Health Service. The student is requested to complete this questionnaire and to return it in the envelope at the earliest possible date. There may be additional requirements in certain faculties and schools.

An appointment will be made for all new students to be seen by a physician at the University Health Service as early as possible during their first academic year. At this interview the health of the student will be reviewed and if it is thought necessary, the student will be medically examined. The examination may include X-ray and other appropriate laboratory or diagnostic tests. Re-examination may also be required in the interest of the student or of others attending the university.

3.7.1 Compulsory health insurance for non-Canadian students

All full-time foreign students (including landed immigrants during their first year at McGill) must take out a Health Insurance policy, which is available on a group basis. In general, the policy provides for payment towards hospital, surgical, medical, diagnostic, and other medical expenses.

Full details and application forms will be sent to all foreign students when they are notified that there is a place for them at the University.

3.8 GENERAL INFORMATION FOR NON-CANADIAN STUDENTS

Students who do not wish to live permanently in Canada, enter the country as temporary residents (non-immigrants) and require some or all of the following documents:

1) PASSPORT. Required of all foreign students except citizens of the United States. A student must leave Canada at least three months before the expiry date on his passport.

Students from the United States must bring with them evidence of their American citizenship such as their birth certificate, baptismal certificate, or passport. Students coming from the United States who are not citizens of that country should carry evidence that they are in the United States legally, and prior to their return should obtain a re-entry permit from the American Immigration Department.

) VISA. Required of all students except British subjects, citizens of Commonwealth ountries, citizens of Ireland and France, and permanent legal residents of the U.S.A. sas are issued at Canadian Embassies, consular offices, and in many countries at anadian immigration offices.

) NON-IMMIGRANT STUDENT DECLARATION. Statement of conditions under which udent is admitted to Canada.

) VACCINATION CERTIFICATE. This is not required by the University but evidence f having had the disease of smallpox or of having been vaccinated within three years f arrival is necessary for entry to Canada for students from some countries (except he U.S.A., Western Europe and the United Kingdom) and this requirement should be hecked with the appropriate Canadian authorities in the area.

) MEDICAL CLEARANCE. Students staying longer than 12 months in Canada require complete medical examination, including chest X-ray. A doctor's certificate of good ealth is not enough. The student pays for his own examination and X-ray.

) LETTER OF ACCEPTANCE FROM A CANADIAN UNIVERSITY.

) PROOF OF AVAILABILITY OF SUFFICIENT FUNDS for the duration of his studies.

) LETTER OF SPONSORSHIP. If a student is financed by an organization, he will equire written authority from the sponsoring organization.

) CANADIAN ENTRY CERTIFICATE. Issued to all students by immigration officer on dmission to Canada.

A pamphlet describing immigration regulations in detail and containing notes and guidance to students from other countries is available from Canadian immigration offices, Canadian Embassies and British Consular offices, or from the Immigration Branch, Department of Citizenship and Immigration, Ottawa, Canada. Local immigration officers will be ready to give advice and help.

A useful handbook entitled *University Study in Canada* can be obtained from Canadian Embassies, Consulates, and the office of High Commissioners and Trade Commissioners. A leaflet entitled *Notes for Foreign Students Who Wish to Attend a Canadian University* may be obtained from The Association of Universities and Colleges of Canada, 151 Slater St., Ottawa Ontario K1P 5N1.

Students may wish to bring their wives to Canada with them. If a student does so, he must show evidence of sufficient funds for her support. Wives of students from other countries may be given permission to work in Canada, if the authorities are satisfied that they would not be depriving residents of a job. A student should notify the immigration officer if his wife wishes to work or take a training program in Canada.

3.9 REGISTRATION

Registration takes place early in September and lectures begin shortly thereafter. Complete information for the use of accepted candidates is sent with the letter of admission, and Faculty counsellors are available in the weeks preceding the commencement of lectures to assist in the planning of schedules.

3.10 LANGUAGE POLICY

The normal language of instruction at McGill is English. Students may if they wish write term papers and examinations in French, but reasonable competence in English is essential to success in the college equivalent and university programs. A summer course, English 120-E15C, is offered and it is recommended that students who lack fluency in English take this summer course *before* embarking on a program of study at McGill.

4 FACULTIES AND SCHOOLS

4.1 CREDIT SYSTEM

McGill University is now operating on a credit system which varies between faculties. All courses carry a credit rating. In the Faculty of Arts and the Faculty of Science a total of 90 credits must be accumulated for a degree, but some Honours programs may require a higher total. For details of the system as it applies to each faculty, see the individual faculty announcements.

The Faculty of Dentistry and the Faculty of Medicine have adopted a Pass-Fail system of grading. The Faculty of Graduate Studies and Research maintains the course system.

4.2 ACADEMIC CREDIT TRANSFER AGREEMENT

Regular full-time and limited undergraduate students (first cycle*) and regular graduate students (second and third cycles) registered at McGill may, with the written permission of the Dean of their Faculty, register for up to 40% of a full course load in each academic year at one or more of the following Montreal universities: Sir George Williams University, Université de Montréal, and Université du Québec à Montréal. These courses, weighted, graded, and successfully completed according to the standards of the university giving the courses, will be fully recognized by McGill for the purpose of the degree for which the student is registered.

Students wishing to take advantage of this agreement should consult their Dean for details, and are informed that this agreement is subject to the following conditions:

i) that the other universities concerned may, at their discretion, refuse the registration of a student for any of its courses or program;

ii) that the obligation of the student to follow the curriculum laid down by McGill is not affected;

iii) that the student is responsible for ensuring his timetable at McGill permits him to take courses at any of the other universities concerned;

iv) that the universities concerned are not responsible for special arrangements in cases of examination timetable conflicts.

Any student taking advantage of these provisions will not pay extra fees to the university, other than McGill, from which he takes a course. The Director of Finance will, upon receiving the Dean's authorization, provide a student with a letter accepting McGill's obligation to make a fee transfer to the university where the course is being taken.

*(i.e. Bachelor degrees in architecture, arts, law, commerce, education, engineering, music, nursing, occupational and physical therapy, science, agriculture, food science, and theology).

4.3 FACULTY OF AGRICULTURE

See Macdonald College, section 4.11.

FACULTY OF ARTS

ean — R. VOGEL, B.A. (S.G.W.U.), M.A., Ph.D.

4.1 DEGREES OFFERED

achelor of Arts (B.A.)
achelor of Social Work (B.S.W.)
he undergraduate work of the University in Humanities and Social Sciences is done the Faculty of Arts.

4.2 DEGREE PROGRAMS IN ARTS

he three-year post-CEGEP program started in the Fall of 1971. A student may take n Honours degree in any department, a degree of high concentration within one discipline and restricted to students who maintain a high level. All other students will hoose an area of concentration (usually but not in every case known as a Major). his Major program can be in a single discipline or in one of several interdisciplinary elds. Full details of these programs will be available either in departments or from cademic advisers and general descriptions are available in the *Announcement of the aculties of Arts and of Science.*

Listed below are the various programs leading to the B.A. degree.

Honours programs are offered in the following subjects:

nthropology
rt History
lassics
conomics
nglish
rench
eography
German
History
Italian
Latin
Linguistics
Mathematics
Philosophy
Political Science
Psychology
Russian
Sociology
Spanish

At least one Major Program is offered in all these subjects, and in some cases there re several to choose from in a single subject. In addition there are the following majors nd concentrations:

frican Studies
anadian Studies
lassics and Linguistics
rench Canada Studies
umanistic Studies
ndustrial Relations
ewish Studies
atin American Studies
Modern Languages
Modern Literature
North American Studies
Religious Studies
Program in Mathematics and Philosophy
Psychology and Mathematics
Psychology, General

Social Work: The undergraduate program of professional studies begins in the first ear of the three-year program. For further information see the *Announcement of the aculties of Arts and of Science.*

5.4.3 ENTRANCE REQUIREMENTS

Entrance requirements for the three-year University program are a Diploma of Collegial Studies or the equivalent.

5.4.4 TRANSFER STUDENTS

All students from other universities who wish to transfer credits to the Faculty of Arts must apply in writing to:

The Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec

4.5 FACULTY OF DENTISTRY

Dean — E. R. AMBROSE, D.D.S., F.I.C.D., F.A.C.D.

4.5.1 DEGREES AND DIPLOMA OFFERED

Doctor of Dental Surgery (D.D.S.)
Period of study in the Faculty for the degree is four years.

Granted under the Faculty of Graduate Studies and Research:
Diploma in Restorative Dentistry and Prosthodontics
One additional year after the D.D.S.

Master of Science in Restorative Dentistry and Prosthodontics (M.Sc.)
Two additional years after the D.D.S.

Master of Science in Oral Surgery (M.Sc.)
Three additional years after the D.D.S.

4.5.2 ENTRANCE REQUIREMENTS

The minimum requirement for admission to the study of dentistry is the satisfactory completion of EITHER the Collegial program in the Province of Quebec OR two full years in a four-year program leading to the B.A. or B.Sc. degree (or the equivalent thereof). In each instance the program must include one full year course in each of the following subjects: English; mathematics; physics, with laboratory; physiology; inorganic or general chemistry, with laboratory; organic chemistry, with laboratory; general biology or zoology, with laboratory (one half year of botany and one half year of zoology will be accepted but not one year of botany alone).

Canadian applicants are requested to write the Canadian Dental Association Aptitude Test and have the results sent to the Faculty. Detailed information may be obtained from the Administrator, Dental Aptitude Test Program, The Canadian Dental Association, 234 St. George Street, Toronto 180, Ontario.

Candidates applying from the United States should write the American Dental Association Aptitude Test and have the results sent to the Faculty.

4.5.3 APPLICATIONS

Application forms for admission to the Faculty may be obtained from the Secretary of the Faculty. The deadline date for receipt of applications is March 1 of the year in which the candidate is seeking admission.

Entering students are advised to make themselves familiar with the specific regulations of the province or state in which they intend to practise upon graduation and to take the necessary steps to become registered.

For details see the *Announcement of the Faculty of Dentistry.*

4.6 FACULTY OF EDUCATION

Dean — C. WAYNE HALL, M.A. (Bishop's)

The Faculty of Education is responsible for the professional education of teachers. It offers a variety of programs by which candidates are prepared for a teaching career in the elementary and secondary schools and colleges of Quebec. Successful completion of any of these programs qualifies the candidate for a Teaching Permit issued by the Quebec Department of Education. For details see the *Faculty of Education Announcement.*

Graduate work leading to the Master of Arts in Education, Master of Education, and Doctor of Education degrees is offered under the authority of the Faculty of Graduate Studies and Research of McGill University. For details see the *Announcement of the Faculty of Graduate Studies and Research, Section "G"*, and the Faculty of Education booklet — *Graduate Degrees in Education.*

4.6.1 **DEGREE OFFERED**

Bachelor of Education (B.Ed.)

4.6.2 **DEGREE PROGRAM**

The three-year program leading to the B.Ed. degree is available with the following options:

Elementary — Early Childhood.

Elementary — Later Childhood.

Secondary — One Subject Option.

Secondary — Two Subject Option.

Special Areas — Art, French, Physical Education, Religion, Home Economics.

The B.Ed. (Elementary Option) is available also on a part-time basis to those who:

(a) hold a teaching certificate valid in Quebec or its equivalent; and

(b) have Quebec Diploma of Collegial Studies standing or its equivalent (i.e. a minimum of 13 years of attested studies).

4.6.3 **ENTRANCE REQUIREMENTS**

Successful completion of a Diploma of Collegial Studies program or equivalent. (See Section 3.4. Entrance Qualifications).

4.6.4 **DIPLOMA PROGRAM**

A one-year program leading to the McGill Diploma in Education and to a teaching permit for elementary or secondary schools and for Technical-Vocational and Business Education subjects in secondary schools. Eligible candidates must possess a university degree with a major (six full courses) in one subject taught in elementary or high schools or a minimum of three full courses in each of two such subjects.

4.6.5 **CERTIFICATE PROGRAMS**

One-year programs leading to a Quebec Teaching Permit for elementary schools or for Technical-Vocational and Business Education subjects in the secondary schools. Collegial level certificates from a CEGEP or studies and/or work experience equivalent are required for admission into these programs.

NOTE: It should be emphasized that possession of a bare passing standard in any of the above programs will not automatically guarantee acceptance into the Faculty of Education. Preference will be given to candidates having a second-class standing or better. Satisfactory letters of reference are also required and candidates for certain options may be required to attend an interview. All candidates for a Quebec Teaching Permit must also demonstrate fluency in the language of instruction (English or French).

4.6.6 **APPLICATION FORMS**

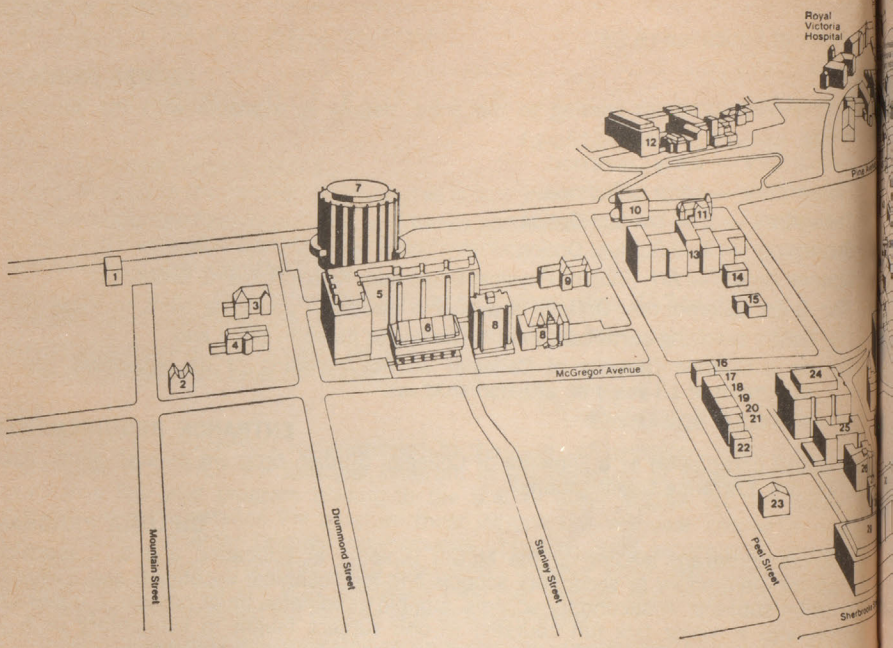
Application forms and further information concerning admission requirements may be obtained from:

Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec

4.7 FACULTY OF ENGINEERING (Including the School of Architecture and the School of Computer Science)

Dean — G. L. d'OMBRAIN, B.Sc. (Eng.), Ph.D. (Lond.), D.I.C., A.C.G.I., M.I.E.E., M.A.I.E.E.

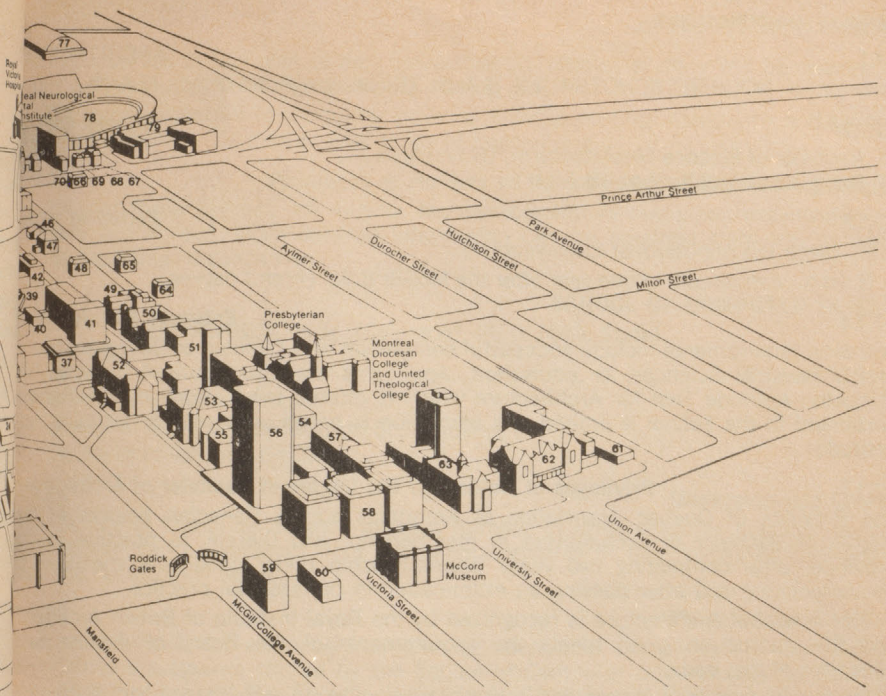
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Administration, University General, 41
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Anthropology of Development, 28
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Art History, 36
Arts, Faculty Offices, 37
Athletics, 79
Athletics, Women's, 61
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Chemical Engineering, 51
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Continuing Education, 59
Dentistry, Faculty Offices, 45
East Asian Language & Literature, 29
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Education, Faculty Offices, 13
Electrical Engineering, 51
Engineering, Faculty Offices, 52
English, 36
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French, Second Language, 27
Geography, 56
Geological Sciences, 54
German Language & Literature, 29
Graduates' Society, 2
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History, 34
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Law, Faculty Offices, 8
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- Redpath, 31

Library Science, 30
Linguistics, 29
Management, Faculty Offices, 29
Mathematics, 56
Mechanical Engineering, 52
Medicine, Faculty Offices, 7
Metallurgical Engineering, 54
Meteorology, 56
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Mining Engineering, 51
Music, Faculty Offices, 62
Nursing, School of, 50
Observatory, 55
Philosophy, 29
Physical Education, 79
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Physics, 55
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- Molson Hall, 76
- Royal Victoria College, 63

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1 Beatty Hall
2 Graduates' Society
3 Davis House
4 Hosmer House
5 Stewart Biological Sciences
6 Greenhouses
7 McIntyre Medical Sciences
8 Chancellor Day Hall
9 Mental Hygiene Institute
10 Purvis Hall
11 Duggan House
12 Allan Memorial Institute
13 Faculty of Education
14 Hugessen House
15 David Thomson House
16 3511 Peel Street
17 3495/91 Peel Street
18 3487 Peel Street
19 3483 Peel Street
20 3479 Peel Street
21 3475 Peel Street
22 3465 Peel Street
23 3437 Peel Street
24 University Centre
25 Peterson Hall
26 Faculty Club
27 3438 McTavish Street
28 3434 McTavish Street
29 Samuel Bronfman Bldg.
30 McLennan Library
31 Redpath Library
32 Redpath Hall
33 Morrice Hall
34 Stephen Leacock Bldg.
35 Redpath Museum
36 Arts Bldg.
37 Dawson Hall
38 840 McGregor
39 Old Greenhouse
40 Stationery Stores
41 F. Cyril James Bldg.
42 Foster Radiation Laboratory
43 Eaton Electronics Laboratory
44 Donner Bldg.
45 Strathcona Anatomy & Dentistry Bldg.
46 3618 University Street
47 3600 University Street
48 3574 University Street
49 William & Henry Birks Bldg.
50 Wilson Hall
51 McConnell Engineering Bldg.
52 Macdonald Engineering Bldg.
53 Macdonald Chemistry Bldg.
54 Frank Dawson Adams Bldg.
55 Macdonald Physics Bldg.
56 Burnside Hall
57 Pulp & Paper Institute
58 Otto Maass Chemistry Bldg.
59 Strathcona Hall
60 762 Sherbrooke Street W.
61 Women's Athletics
62 Strathcona Music Bldg.
63 Royal Victoria College
64 3521 University Street
65 3587 University Street
66 522 Pine Avenue W.
67 505 Pine Avenue W.
68 509 Pine Avenue W.
69 515/517 Pine Avenue W.
70 527 Pine Avenue W.
71 Pathology Bldg.
72 Douglas Hall
73 Gardner Hall
74 Bishop Mountain Hall
75 Molson Hall
76 McConnell Hall
77 McConnell Winter Stadium
78 Molson Stadium
79 Sir Arthur Currie Memorial Gymnasium

4.7.1 **ARCHITECTURE**

Director — NORBERT SCHOENAUER, B.Arch. (Royal Hungarian Univ.), M.Arch.

4.7.1.2 **Degrees Offered**

1) Bachelor of Science (Architecture), (B.Sc.(Arch.)).
2) Bachelor of Architecture (B.Arch.).

4.7.1.3 **Period of Study**

B.Sc. (Arch.): a minimum of three years.

B.Arch.: a minimum of one year after the McGill B.Sc. (Arch.) degree.

4.7.1.4 **Entrance Requirements**

Entrance requirements include successful completion of a Diploma of Collegial Studies in the Physical Sciences, or equivalent. Applicants are also required to write the Princeton Aptitude Test for Architecture which is offered twice yearly by the School. Enrolment in the School is limited and admission is based on academic standing and aptitude.

4.7.1.5 **Privileges of Holders of the Degree of Bachelor of Architecture**

The Province of Quebec Association of Architects admits Canadian holders of the degree of Bachelor of Architecture to membership, and thereby to practice in the province, after completing two years' apprenticeship under conditions specified by the Association and after passing an examination in professional practice.

The School of Architecture is recognized by the Royal Institute of British Architects and the instruction given meets the requirements of the Board of Architectural Education of that body.

For complete details of program, courses, rules governing attendance and promotion, etc., see the *Announcement of the Faculty of Engineering.*

4.7.2 **ENGINEERING**

4.7.2.1 **Degrees Offered**

1) Bachelor of Engineering (B.Eng.), in the departments of Chemical, Civil, Electrical, Mechanical and Metallurgical and Mining Engineering and Applied Geophysics.
2) Bachelor of Engineering (B.Eng.) (Honours), in the departments of Electrical and Mechanical Engineering.

4.7.2.2 **Period of Study**

A minimum of three years is required.

Students who take the Bachelor of Engineering degree in one program may graduate in another program by attending two or more subsequent terms and passing the prescribed additional examinations.

4.7.2.3 **Programs**

1) The Regular Program is designed to prepare candidates for a wide variety of careers in engineering. Graduates with high standing and an interest in university careers or other research activities are encouraged to continue their studies at the graduate level.

2) An Honours Program, available in the departments of Electrical and Mechanical Engineering, is designed particularly for students who intend to pursue research careers in these fields. Admission is at the discretion of the departments and is normally granted only to students who have demonstrated high ability in mathematics and physics at the collegial level.

Students who fail to maintain honours standing are required to transfer to the Regular Program.

4.7.2.4 **Entrance Requirements**

Entrance requirements are based on successful completion of a Diploma of Collegial Studies in the Physical Sciences or equivalent. Candidates are strongly advised to

include courses in Calculus in their pre-university studies or they will be required to take a special course in mathematics during the first semester.

For complete details of programs, courses, rules governing attendance and grading, etc., see the *Announcement of the Faculty of Engineering.*

4.7.2.5 Privileges of Holders of the Bachelor of Engineering Degrees

Holders of these degrees are eligible for membership in numerous organizations in Canada and abroad. More detailed information can be obtained from the chairmen of the departments concerned.

4.7.3 SCHOOL OF COMPUTER SCIENCE

Director — G. MARSAGLIA, B.Sc. (Colorado), Ph.D. (Ohio State).

4.7.3.1 Degrees Offered

1) Master of Science (M.Sc.)
2) Master of Science (Applied), (M.Sc. (Applied))
3) Doctor of Philosophy (Ph.D.)

4.7.3.2 Undergraduate Courses

The School of Computer Science offers a number of undergraduate courses. Further information can be obtained from the Announcements of the Faculty of Engineering and the Faculty of Science.

4.7.3.3 Postgraduate Programs

The requirements for entrance into and for successful completion of the Master's and Doctor's programs offered by the School of Computer Science may be found in the *Announcement of the Faculty of Graduate Studies and Research, Section "E", Physical Sciences and Engineering.* A list of the postgraduate courses offered by the School is published in the same Announcement.

4.8 FACULTY OF GRADUATE STUDIES AND RESEARCH

Dean — W. F. HITSCHFELD, B.A.Sc. (Tor.), Ph. D.

The Faculty of Graduate Studies and Research offers programs leading to diplomas and degrees as follows:

4.8.1 DIPLOMAS

See the *Announcement of the Faculty of Graduate Studies and Research.*

4.8.2 MASTER'S DEGREES

For complete information on all programs see the *Announcement of the Faculty of Graduate Studies and Research.*

The Degree of Master of Architecture may be obtained in the following fields:

Architectural Design — Community Planning — Housing

The Degree of Master of Arts may be obtained in the following subjects:

Anthropology	Geography	Philosophy
Art History	German	Political Science
Classics	History	Psychology
Economics	Islamic Studies	Religious Studies
Education	Italian	Russian
English	Linguistics	Sociology and Anthropology
French	Mathematics	Spanish

The Master's Degree in Business Administration

The Master's Degree in Commerce

The Master's Degree in Education

The Degree of Master of Engineering may be obtained in the following fields of Engineering:

Chemical
Civil
Electrical
Mechanical
Metallurgical and Mining Engineering and Applied Geophysics

The Master's Degree in Engineering (Mining)

Master's Degrees in Law:

1) **The Degree of Master of Civil Law** may be obtained in the following aspects:

Roman Law
Civil Law
Commercial and Maritime Law
Public Law, including International Law
Legal problems of government control of business
Law and Constitution of International Organizations

2) **The Degree of Master of Laws** is offered in the Institute of Air and Space Law and in the Institute of Comparative Law.

The Master's Degree in Library Science

The Master's Degree in Musical Arts

The Master's Degree in Nursing (Teaching)

The Degree of Master of Science may be obtained in the following subjects:

Agricultural Chemistry
Agricultural Engineering
Agronomy
Anatomy
Animal Science
Biochemistry
Biology
Chemistry
Computer Science
Crystallography
Electrical Communications
Entomology
Epidemiology and Health
Experimental Medicine
Experimental Surgery
Fluid Mechanics
Geography
Geological Sciences
Geophysics
Glaciology
Horticulture
Human Communication Disorders
Marine Sciences
Mathematics
Metallurgy, Metallurgical and Mining Engineering and Applied Geophysics
Meteorology
Microbiology and Immunology
Microbiology (Macdonald College)
Neurology and Neurosurgery
Oral Surgery
Otolaryngology
Parasitology
Pathology
Pharmacology
Physics
Physiology
Plant Pathology
Psychiatry
Psychology
Radiology
Restorative Dentistry and Prosthodontics
Soil Science
Wildlife Biology
Woodlot Management

The Degree of Master of Science (Applied) may be obtained in the following subjects:

Computer Science
Geological Sciences (Engineering Geology, Mineral Exploration)
Human Communication Disorders
Nursing
Physical Therapy
Psychology

The Master's Degree in Social Work

4.8.3 DOCTOR'S DEGREES

The Doctor's Degree in Civil Law

The Doctor's Degree in Education

The Degree of Doctor of Philosophy (Ph.D.) may be obtained in the following subjects:

Agricultural Chemistry
Agricultural Engineering
Agronomy
Anatomy
Animal Science
Anthropology
Art History
Biochemistry
Biology
Chemical Engineering
Chemistry
Civil Engineering
Classics
Computer Science
Economics
Electrical Engineering
English
Entomology
Epidemiology and Health
Experimental Medicine
Experimental Surgery
French
Geography
Geological Sciences
German
History
Human Communication Disorders
Islamic Studies
Linguistics
Marine Sciences
Mathematics
Mechanical Engineering
Metallurgy, Metallurgical and Mining Engineering and Applied Geophysics
Meteorology
Microbiology and Immunology
Microbiology (Macdonald College)
Neurology and Neurosurgery
Parasitology
Pathology
Pharmacology
Philosophy
Physics
Physiology
Plant Pathology
Political Science
Psychology
Religious Studies
Russian
Sociology
Soil Science

For further information see the *Announcement of the Faculty of Graduate Studies and Research.*

4.9 FACULTY OF LAW

Dean — JOHN W. DURNFORD, B.A., B.C.L.

Chancellor Day Hall
3644 Peel Street
Montreal 112, Quebec

4.9.1 DEGREES OFFERED

Bachelor of Civil Law (B.C.L.), and Bachelor of Laws (LL.B.).

Under the authority of the Faculty of Graduate Studies and Research the degree of Master of Civil Law (M.C.L.) is granted for advanced study in law, the degree of Master of Laws (LL.M.) for studies in the field of international air law and comparative law, and the degree of Doctor of Civil Law for higher studies in law.

4.9.2 PERIOD OF STUDY

Period of study for the B.C.L. or LL.B. degree: Generally three to four years.

Students proceeding to the Quebec Bar and notarial profession are required to take additional training after graduation from the Faculty.

Students studying for the Bachelor of Laws degree (LL.B.) may proceed thereafter to the Bar Admission program of one of the Common Law provinces.

4.9.3 **ENTRANCE REQUIREMENTS**

To be qualified for admission to the Faculty a student must have obtained with a second class standing a B.A. or equivalent degree from a university or college which is recognized by McGill University, or a diploma with a high standing from a Quebec General and Vocational College (CEGEP), or a Diploma of Collegial Studies from a Quebec university, and have substantial fluency in both the French and English languages. In exceptional cases students who do not intend to practise either the legal or notarial profession may be admitted to the Faculty with lesser academic qualifications if they are qualified to pursue with advantage the study of law. In all cases, admission is at the discretion of the Faculty. Between applicants who apply for admission to the LL.B. program, preference is given to those intending to proceed to both the LL.B. and B.C.L. degrees. Students entering the Faculty with a CEGEP diploma must take the B.C.L. degree before they are permitted to proceed to the LL.B. degree.

Candidates for admission to the Quebec Bar must be Canadian citizens and must hold a diploma from a Quebec General and Vocational College (CEGEP), or a Diploma of Collegial Studies from a Quebec university, or a B.A. degree or its equivalent from a university or college of which the degree is recognized jointly by Laval, McGill, Montreal, Ottawa and Sherbrooke Universities and, in addition, by the Bar.

Candidates for admission to the Quebec notarial profession must be Canadian citizens and hold a diploma from a Quebec General and Vocational College (CEGEP), or a Diploma of Collegial Studies from a Quebec university, or a B.A. of a university or college whose degree is recognized jointly by Laval, Montreal, McGill, Sherbrooke and Ottawa Universities for admission to their law courses, and also by the Board.

Candidates for the Bachelor of Laws degree (LL.B.) and seeking entrance to the Bar Admission program of any of the Common Law provinces must satisfy the regulations of the particular Common Law province to the Bar admission course or program of which entrance is sought.

For details concerning staff, curriculum and also higher studies in the Institutes of Air and Space Law and Comparative Law see the *Announcement of the Faculty of Law*.

4.9.4 **APPLICATIONS**

The deadline for receipt of applications is March 1 of the year in which the candidate is seeking admission. Application forms may be obtained from the Faculty Office. All inquiries should be addressed to the Faculty.

4.10 GRADUATE SCHOOL OF LIBRARY SCIENCE (in the Faculty of Graduate Studies and Research)

Director — EFFIE C. ASTBURY, M.L.S. (Tor.), B.A., B.L.S.

4.10.1 **DEGREE OFFERED**

Master of Library Science (M.L.S).
Period of Study: Two years.

ENTRANCE REQUIREMENTS

A B.A. or B.Sc. from a recognized university. Applicants are expected to have a knowledge of at least one language other than English, and their academic grades should have been not less than an average of 65% or "B". For details see the *Announcement of the Graduate School of Library Science*.

4.11 MACDONALD COLLEGE

Macdonald College, Quebec.

Macdonald College, which was founded and endowed by the late Sir William C. Macdonald, is incorporated with McGill University. It is situated twenty miles west of

ontreal, at Ste. Anne de Bellevue, Quebec. It consists of the Faculty of Agriculture, hich includes the School of Food Science.

All programs leading to the Bachelor's, Master's and Doctoral degrees are under e control of the Senate of McGill University; the Diploma program in Agriculture is der the direction of the Faculty of Agriculture.

1.1

FACULTY OF AGRICULTURE
(Including the School of Food Science)

ean — A. C. BLACKWOOD, B.Sc., M.S. (Alta.), Ph.D. (Wis.)

e work of the agricultural departments of the College falls into three main divisions: aching, research, and extension. Teaching and research form the major part of their ork. Extension work is undertaken by departments as the need or opportunity may ise.

The School of Food Science is an integral part of the Faculty of Agriculture. The ain function of the School is to provide professional education in Food and Consumer iences, including Home Economics.

1.2

DEGREES OFFERED

achelor of Science in Agriculture (B.Sc. (Agr.)).
achelor of Science in Agricultural Engineering (B.Sc. (Agr.Eng.)).
achelor of Science in Food Science (B.Sc. (F.Sc.)).

1.3

DIPLOMA OFFERED

ploma in Agriculture.

1.4

ENTRANCE REQUIREMENTS

e Diploma of Collegial Studies in science or its equivalent is required for entrance.

By special agreement, the Nova Scotia Agricultural College, Truro, N.S., has ranged to provide their students with a program of studies permitting transfer to the culty of Agriculture at Macdonald College. Students who have completed such a ogram of study with satisfactory standing in courses equivalent to the Diploma of llegial Studies will be admitted to the appropriate years in the Faculty provided that eir overall averages and their grades in individual courses are considered satisfac- y by the Committee on Admissions.

In addition, students who have completed Senior Matriculation and one additional ar of studies will be considered for admission provided that their program includes ology, physics, chemistry and mathematics (including one year of Calculus) at an ceptable level and that their overall averages and their grades in individual courses eet the requirements for admission.

Students transferring from other faculties or universities will be granted credits wards their degree for courses which they have passed at a satisfactory level and e considered equivalent to courses offered by the Faculty.

Qualified Secondary V applicants will be admitted to the two-year **Diploma in riculture** program as in the past. It is anticipated that this program will continue be offered as an alternative to the CEGEP because it meets a need which is not to found in any existing CEGEP.

APPLICATION DATE

plications for admission to the Faculty of Agriculture and the School of Food Science ay be submitted until August 15 for fall admission and December 15 for January mission and may be obtained from The Registrar, Macdonald College, Que.

1.5

PROGRAMS OF STUDIES

e three-year program involves a total of at least 90 credits depending on the major osen. Each major requires: (1) a certain number of required "core" credits, (2) edits elected in consultation with the Department in which the major is to be taken, d (3) free credits elected by the students.

The following programs of study are offered by the Faculty of Agriculture and the hool of Food Science.

4.11.5.1 Bachelor of Science in Agriculture, B.Sc. (Agr.)

A three-year program from the Diploma of Collegial Studies leading to professional qualification in Agricultural Science (Agricultural Economics, Animal Science, General Agricultural Science, Plant Science, Soil Science) or in one of its related specialized branches in the Biological Sciences (Botanical Sciences, Environmental Biology, Microbiology, Zoological Sciences) and Renewable Resources Development (Environmental Conservation, Regional Resource Planning, Wildlife Resources).

4.11.5.2 Bachelor of Science in Agricultural Engineering, B.Sc. (Agr.Eng.)

A three-year program from the Diploma of Collegial Studies leading to professional qualification in Agricultural Engineering. Holders of this degree are eligible for membership in professional engineering societies.

4.11.5.3 Bachelor of Science in Food Science, B.Sc. (F.Sc.)

A three-year program from the Diploma of Collegial Studies leading to the professional qualifications necessary for dietetics, home economics or food technology as well as the following majors in the Food and Consumer Sciences Area: Food Chemistry, Food Management, Nutrition, and Consumer Education.

4.11.5.4 Diploma in Agriculture

A two-year practical program in Agriculture from junior matriculation with emphasis on providing young people from rural areas with a sound training in modern agricultural practice.

4.11.5.5 Postgraduate Programs in Agricultural Science

These lead to the degrees of Master of Science and Doctor of Philosophy, with study and research in one or more of the Departments of the Faculty. The program of studies and examinations are controlled by the Faculty of Graduate Studies and Research.

4.12 FACULTY OF MANAGEMENT

Dean — HOWARD I. ROSS, O.B.E., C.A., M.A. (Oxon.), LL.D. (Queen's, S.G.W.U.), D.Sc.Com. (Sher.), B.A.

Samuel Bronfman Building
1001 Sherbrooke Street, West
Montreal 101, Quebec

4.12.1 DEGREES OFFERED

Bachelor of Commerce (B.Com.).

Master of Business Administration (M.B.A.), under the authority of the Faculty of Graduate Studies and Research.

4.12.1.1 Aims of the Undergraduate Program

Management means getting things accomplished as effectively as possible. The ideal manager is a well-rounded man, with strong character, good judgment, breadth of vision and thorough competence in the management skills — behavioural and quantitative — which are being developed in this age of rapid technological change.

When everything is changing at such a fantastic pace, it is no longer possible to train good managers by simply passing on to them wisdom developed in a past age. Experience can still be a great teacher, but only if intelligently interpreted and applied. Concepts must not be static; managers must be developed who can meet new challenges as they arise.

The different qualities required in a competent manager are teachable in varying degrees. The aim of the program is to give students an opportunity to master new management techniques, and also to broaden their outlook by optional courses in a wide variety of disciplines. There are certain management skills which constitute "core

ubjects which every manager should have — but beyond these, students are encouraged to follow lines of interest through which they will emerge broadly educated. A ood manager must be able to understand and to work with both the generalists and pecialists that are required in our complex society.

.12.1.2 Degree Programs and Requirements

ENERAL PROGRAM

he three-year program involves a total of 90 credits of which (1) 42 credits are in core" subjects, required of all students, (2) 18 credits are chosen for deeper study n a particular management area, (3) 18 credits are chosen outside the Faculty and 4) 12 credits are chosen without restriction. The "core" in (1) above includes Accounting, Behavioural Science, Computers, Economics, Finance, Marketing, Mathematics, perations Research, and Statistics. The Management Elective Groups in (2) above re Accounting, Computers and Systems, Finance, International Business, Marketing, rganizational Behaviour and Personnel, and Quantitative Methods.

AJOR AND HONOURS PROGRAMS

Major programs are available within the Faculty in Economics, Economics and Political cience, Industrial Relations, Mathematics and Psychology.

Honours programs are available within the Faculty in Economics, and Economics nd Accounting.

NTRANCE REQUIREMENTS

ntrance to the first year of the three-year post-CEGEP Program leading to the Bachelor f Commerce is in accordance with the requirements for CEGEP studies. To provide the ntering student with the greatest degree of flexibility possible in his pre-University rogram, the specific course requirements for entry to the Faculty have been kept o one-term courses in each of Differential and Integral Calculus.

Students wishing to enter the Bachelor of Commerce program must apply in writing, efore March 1, to:

Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec

RANSFER STUDENTS

tudents presently enrolled in another Faculty of this University wishing to transfer o the Bachelor of Commerce program must apply in writing not later than July 1 to:

The Secretary of Admissions
Bachelor of Commerce Program
Faculty of Management
McGill University
P.O. Box 6070
Montreal 101, Quebec

.12.2 GRADUATE PROGRAM MASTER OF BUSINESS ADMINISTRATION FACULTY OF GRADUATE STUDIES AND RESEARCH

eriod of Study: Two years.

Entrance Requirements

A Bachelor's degree with first or high second class standing from a recognized university, a satisfactory performance on the Princeton Admission Test for Graduate Studies n Business, letters of recommendation from two university teachers, and a basic knowledge of calculus and statistics. Preference will be given to applicants who also have some knowledge of matrix algebra and economics.

For details see the *Announcement of the Faculty of Graduate Studies and Research,* Section "G".

4.13 FACULTY OF MEDICINE

Dean — R. F. PATRICK CRONIN, M.D.,C.M., M.Sc. M.R.C.P. (Lond.), F.R.C.P.(C)

McIntyre Medical Sciences Building
3655 Drummond Street
Montreal 109, Quebec

4.13.1 DEGREES AND DIPLOMAS OFFERED

Doctor of Medicine and Master of Surgery (M.D.,C.M.).

The degrees of M.Sc. and Ph.D. in Medical and Allied Sciences are granted under the authority of the Faculty of Graduate Studies and Research. For information see the *Announcement of the Faculty of Graduate Studies and Research.*

Diplomas for advanced study in several clinical departments of the Faculty.

Period of Study in the Faculty for the Degree of M.D.,C.M.: Four years.

Licence to Practise: The provincial Colleges of Physicians and Surgeons define the requirements of fully licensed medical practitioners in each province. Final-year medical students wishing to apply for the examination of the Medical Council of Canada must do so before March 15. Details of the requirements of registration must be obtained from the College of Physicians and Surgeons in the province where the student intends to practise.

4.13.2 ENTRANCE REQUIREMENTS

A. The Four-Year Course in Medicine

The normal requirement is a B.A. or B.Sc. degree, although students of exceptionally high standing may apply for admission at the end of the Third year of undergraduate study.

The pre-medical work must include:

Physics — One year of general college physics with laboratory work.

Biology — One year of biology with laboratory work including studies at the cellular and the sub-cellular level.

Chemistry — Two years.

a) One full year's course of general chemistry with laboratory work.
b) One full year's course of organic chemistry with laboratory work.

Recommended: In addition to the above requirements a full year's course in the mammalian physiology is highly recommended.

In selecting courses, in addition to the specific requirements listed above, an intending medical student should plan his pre-medical program as a whole, and in accordance with a definite educational objective. Emphasis should be laid on the broad educational value and the intellectual training afforded, rather than on the factual content of such pre-medical curricula; the student is therefore advised to plan his program in such a way as to provide more than elementary training in some definite field of learning which appeals to him; this major field may be selected from the natural or the social sciences or the humanities. Certain subjects which though not essential have been found valuable in medical study, and which may be included as electives if the curriculum in the major field permits, are psychology, sociology, and genetics.

Students with a strong interest in science and with aptitude for scientific studies should consider pursuing physiology, histology, or biochemistry at the B.Sc. level to a high standard, and all of these subjects provide an excellent background for entry to medical school. Other students may prefer to acquire a broader educational background during their pre-medical training, and the Admissions Committee will consider admission into Medicine from students of high standing independently of the scientific background they may have acquired during their pre-medical program.

Application Forms may be obtained from the Associate Dean of the Faculty of Medicine. These forms must be completed and returned with a fee of $15.00 as early

as possible and definitely *before March 1* of the year in which the applicant hopes to gain admission to the Faculty.

Candidates are reminded that the Faculty can accept only a small percentage of those who apply. Preference must of necessity be given to Quebec students.

B. The Five-Year Course in Medicine

Students of the Province of Quebec completing the two-year program in Quebec Colleges of General and Professional Education are eligible to submit an application. Successful applicants in this category will enter a five-year program, the first year will supplement the undergraduate pre-medical training provided by the CEGEPs, following which the student proceeds into the present four-year medical curriculum.

Applications

Applications for this program are made through the Admissions Office (see entry on Admission, Section 3).

4.14 FACULTY OF MUSIC

Dean — HELMUT BLUME, Mus.B. (Graduate, Staatliche Akademische Hochschule für Musik, Berlin)

Strathcona Music Building
555 Sherbrooke St. West
Montreal 111, Quebec

4.14.1 DEGREES AND DIPLOMAS OFFERED

Bachelor of Music (B.Mus.)
Master of Musical Arts (M.M.A.)
Licentiate of Music (L.Mus.)
Concert Diploma

4.14.2 PERIOD OF STUDY

B.Mus. degree — normally three years after the completion of the Diploma of Collegial Studies or its equivalent.
M.M.A. degree — two years after B.Mus. (Faculty of Graduate Studies and Research).
Licentiate — normally three years.
Concert Diploma — two years after the Licentiate.

4.14.3 PROGRAM OF STUDY

4.14.3.1 Bachelor of Music

The degree of Bachelor of Music can be obtained in any one of the following five major fields of concentration:

COMPOSITION

The curriculum in Composition is designed for those students whose interest and talent lie in the field of creative music.

HISTORY OF MUSIC

The curriculum in Music History is intended for those interested in the scholarly disciplines of music and as a preparation for subsequent concentration in musicology.

SCHOOL MUSIC

This program provides the practical and theoretical training required by those who are planning a career as music teachers at the elementary or secondary school levels.

PERFORMANCE

The degree program in Performance is available to those wishing to combine their practical concentration (all instruments or voice) with substantial studies in theoretical and academic subjects.

THEORY

An honours program is offered to those who wish to specialize in music theory. Interdisciplinary programs between Theory and one of English, linguistics, mathematics, philosophy or psychology are available.

4.14.3.2 **Master of Musical Arts**

The degree of Master of Musical Arts, which the Faculty of Music offers in conjunction with the Faculty of Graduate Studies and Research, can be obtained in one of the following three fields of concentration:

COMPOSITION

This program is designed for those planning on a career as professional composers and/or teachers of composition and allied subjects. It also prepares the student for doctoral studies in the field of concentration.

MUSICOLOGY

This program provides training in the techniques of musicological research and prepares the student for doctoral studies in musicology.

THEORY

This program is designed for those who wish to do research in some specialized area of music theory. Interdisciplinary studies relating music with other arts and the sciences are encouraged.

For details of these graduate programs, please consult the *Announcement of the Faculty of Graduate Studies and Research.*

4.14.3.3 **Licentiate of Music Diploma**

The Licentiate of Music diploma program is specially designed for those instrumentalists and singers who wish to concentrate on the practical subject of their choice while limiting their theoretical studies to basic areas in History, Theory and Ear Training.

4.14.3.4 **The Concert Diploma**

This is a post-Licentiate diploma available only to specially gifted instrumentalists and singers who have the proven talent and capacity for a professional career as performers. The Concert Diploma is offered in Piano, Organ, Harpsichord, Violin, Viola, Cello, Flute, Clarinet, Saxophone, and Voice.

4.14.4 **GENERAL INFORMATION**

The McGill Faculty of Music is located in the Strathcona Music Building on the campus. The Faculty's facilities include classrooms; teaching studios; practice rooms; a library of books, scores and recordings; reading rooms; listening booths; an electronic music studio; and two concert halls.

Montreal, the largest metropolis in Canada, is not only a most stimulating city because of its bilingual, bicultural character, but it is also a music centre of the first order. The many concerts by the world's celebrated artists and ensembles at the Place des Arts; the annual concert series by the Montreal Symphony Orchestra, the McGill Chamber Orchestra, Ladies' Morning Musical Club, Les Amis de l'Art, Pro Musica (to name only a few); opera and ballet presentations; the T.V. and radio concerts of the CBC's French and English production centres in Montreal; the presence of the Canadian headquarters of the Jeunesses Musicales with its beautiful concert hall and music camp at nearby Mont Orford; international music competitions; summer concerts — all these and many other events and attractions offer a unique opportunity of first-hand experience and study to the young music student.

Music Credit Options in the Faculty of Arts and of Science

The Faculty of Music offers two series of courses that may be taken for credit by students in the Faculty of Arts and the Faculty of Science. One series is a sequence of professional courses that deal with music theory and the history of music and are part of the undergraduate music curriculum. These courses may be taken only by those who have offered Music as a matriculation subject or have the theoretical and practical equivalent.

The courses in the other series are designed to meet the needs of those Arts and Science students who are interested in the cultural (non-professional) approach to music. The first course is introductory; the other courses cover the music of different periods from the Middle Ages to the present day.

4.14.5

ADMISSION

Inquiries concerning admission to all degree and diploma programs should be directed to the Dean of the Faculty of Music, Strathcona Music Building, 555 Sherbrooke St. West, Montreal 111.

Application forms may be obtained from the Faculty of Music. Completed applications *must be returned to the Faculty of Music* before March 1 of the year in which the candidate hopes to gain admission. Late applications will be considered if space still remains for admission.

4.14.6

ENTRANCE REQUIREMENTS

Because the following requirements are written for Canadian students, applicants from the United States and Overseas should refer to section 3.

4.14.6.1

Bachelor of Music Program

For the 1973-74 session, candidates will be admitted to the Bachelor of Music program if they have completed the first year of studies towards the Diploma of Collegial Studies or its equivalent. A limited number of students will be admitted who have satisfactorily completed Quebec Secondary V and who can demonstrate advanced standing in music.

4.14.6.2

Music Requirements

FOR COMPOSITION, MUSIC HISTORY, SCHOOL MUSIC, AND THEORY:

McGill Collegial I (Instrument or Voice) or equivalent
McGill Collegial II (Theory, Analysis, and Ear Training) or equivalent

FOR PERFORMANCE:

McGill Collegial II (Instrument or Voice) or equivalent
McGill Collegial I (Theory, Analysis, and Ear Training) or equivalent

4.14.6.2.1

Piano Proficiency

All candidates admitted to the degree programs of the Faculty of Music should be prepared to demonstrate piano proficiency equivalent to that of McGill Secondary Level I (Grade 7) when they register for their first term.

For a description of this level in piano, please consult the syllabus of the *Preparatory School of Music of McGill University.*

NOTE: The Faculty requires an entrance audition of all students.

NOTE: High School students who wish to take music at the Secondary V level, please note that completion of the McGill Secondary Levels in instrument or voice, along with Theory and Ear Training, is recognized as a Secondary V credit by the Quebec Department of Education.

4.14.6.3

Advanced Standing

Credit will be given for advanced standing in all academic and music subjects on the basis of high school, college, and university transcripts as well as placement tests and special auditions.

4.14.6.4

Licentiate Program

A candidate must present a Secondary V certificate (eight academic subjects). His music qualifications must be McGill Preparatory Grade 11 (instrument or voice) and McGill Theory and Ear Training 9, or equivalent. An entrance audition may also be required.

The College Entrance Examination Board Tests are not required for this program.

4.14.6.5

Concert Diploma Program

In order to qualify for admission to the Concert Diploma program, the candidate must have the Licentiate diploma of the McGill Faculty of Music or its equivalent and must pass an audition in his chosen subject to satisfy the panel that he has the talent for a professional career as a concert performer.

4.15 SCHOOL OF NURSING (in the Faculty of Medicine)

Director — JOAN M. GILCHRIST, B.N., M.Sc.(Appl.), R.N.

Wilson Hall,
3506 University St.,
Montreal 112, Quebec.

4.15.1 DEGREES OFFERED

1) Bachelor of Nursing (B.N.) for graduate nurses. A two-year program from senior matriculation, preparing nurses for careers in Nursing Education or in supervision of nursing services in hospitals and public health agencies.
2) Bachelor of Science in Nursing (B.Sc. (N)). A three-year program, combining general and professional education, is based on two pre-university years in the biological sciences. Clinical experience in Nursing is obtained in the McGill Teaching Hospitals and other community agencies.
3) Master of Science (Applied) (M.Sc. (Applied)). A two-year program under the Faculty of Graduate Studies and Research with opportunity to specialize in nursing. Students undertake a research project related to a significant nursing problem and focus on either the administration of nursing services or curriculum development and the teaching of nursing.
4) Master of Nursing (Teaching) (M.N. (Teaching)). A one calendar year program under the Faculty of Graduate Studies and Research to prepare teachers for the new educational programs across Canada.

4.15.2 ENTRANCE REQUIREMENTS AND APPLICATIONS

1) **Bachelor of Science in Nursing.** Entrance requirements and application procedures are the same as those for the regular B.Sc. program. See entries on Admissions Sections. Introductory courses in psychology and sociology are added to the curriculum if these have not been taken as options in CEGEP.

2) **Bachelor of Nursing.** Candidates are required to have senior matriculation standing in five subjects as follows: English, Biology or Chemistry and three of the following: History, Mathematics, Physics, German, French, Latin, Spanish. An average of at least 65% is required.

Applications may be obtained from the Admissions Office or the School of Nursing, and returned to:

The Admissions Office,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec.

Acceptances will be made in January and April.

3) **Master's Degrees.** For details please see the *Announcement of the School of Nursing* or the *Announcement of the Faculty of Graduate Studies and Research.*

4.16 SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY (in the Faculty of Medicine)

Director — GUY H. FISK, B.A., M.D.,C.M., D.T.M. and H. (Eng.), F.R.C.P.(C)

3654 Drummond Street
Montreal 112, Quebec

Physical Therapy is the assessment and treatment of injury and disease through the specific application of therapeutic exercise, heat, light, water and electricity.

Occupational Therapy is the specific application of purposeful activities and work processes in the treatment of injury or disease with emphasis on prevocational assessment and rehabilitation training.

16.1 DEGREES OFFERED

achelor of Science in Physical Therapy, B.Sc. (Phys. Ther.).

The full curriculum consists of three years after the Diploma of Collegial Studies or quivalent in the biological sciences stream. Included in the program are further ourses in science together with professional training in Physical Therapy.

Bachelor of Science in Occupational Therapy, B.Sc. (Occ. Ther.).

The full curriculum consists of three years after the Diploma of Collegial Studies or quivalent in the biological sciences stream. Included are courses in science together ith professional training in Occupational Therapy.

Master of Science (Applied) M.Sc.(Appl.).

Available in Physical Therapy. A two-year program under the Faculty of Graduate tudies and Research.

16.2 PHYSICAL REQUIREMENTS

order to qualify for admission candidates must satisfactorily pass a complete hysical examination.

16.3 ENTRANCE REQUIREMENTS

ompletion of a Diploma of Collegial Studies in biological sciences or equivalent is quired for admission to the Bachelor of Science in Physical Therapy or Bachelor Science in Occupational Therapy programs.

17 FACULTY OF RELIGIOUS STUDIES

ean — GEORGE JOHNSTON, M.A., B.D. (Glasgow), Ph.D. (Cantab.), D.D. (Glasgow)

William and Henry Birks Building
3520 University Street
Montreal 112, Quebec

17.1 DEGREES OFFERED

achelor of Theology (B.Th.)

The Faculty also prepares graduate students for the degrees of M.A. and Ph.D. in eligious Studies in conjunction with the Faculty of Graduate Studies and Research.

17.2 PERIOD OF STUDY FOR BACHELOR'S DEGREE

hree years, or two years following a B.A. or equivalent degree.

17.3 ENTRANCE REQUIREMENTS

or the B.Th., an academic diploma from a Quebec CEGEP or the equivalent. Advanced anding is granted to those who possess an approved B.A.

For the M.A., a B.A. with a major in religion or theology and at least second class anding; or an approved B.Th. or B.D. See the *Announcement of the Faculty of Graduate Studies* and the calendar of the Faculty of Religious Studies for degree regulations nd other necessary information.

It should be noted that three theological colleges affiliated to McGill are associated ith the Faculty. Intending ordinands can meet the requirements of their churches for cademic theology by taking selected degree courses in the Faculty upon the advice their college principal. After they have completed a University degree they may roceed to theological college for a year of professional training.

18 FACULTY OF SCIENCE

ean — E. J. STANSBURY, M.A., Ph.D. (Tor.)

18.1 DEGREE OFFERED

achelor of Science (B.Sc.)

PERIOD OF STUDY

4.18.2

The degree program normally requires three years of study after the Diploma of Collegial Studies. Acceleration may be possible in some cases as student progress is determined on a credit system.

ADMISSION

4.18.3

Admission to the Faculty's degree program requires completion of a Diploma of Collegial Studies in science or equivalent (see section 3).

STUDY PLANS

4.18.4

Three types of study plan are available: Faculty Programs, Major Programs and Honours Programs.

A Faculty Program is an approved coherent selection of courses giving the student a useful concentration in a recognized area. Three fifths of the student's course load in a Faculty Program is specified, the remaining courses being freely elected from those offered in the Faculties of Science and Arts. A student may thus choose a pattern of study within a Faculty program which can range from one yielding a broad education to one specializing in particular interests.

Major programs are more specialized than Faculty programs, and are usually centred around a specific discipline or department. Between three fifths and four fifths of the course load is specified in the program and the student is free to elect the remaining courses from among the offerings in the Faculties of Science and Arts.

Honours Programs require the student to maintain academic performance at a high standard in addition to involving a very high degree of specialization.

Faculty Programs are available in:

Anatomical Sciences
Biochemistry
Biogeography
Biology
Chemistry
Chemistry and Biological Sciences
Climatology
Dynamics of the Oceans and Atmosphere
Earth Physics
Geomorphology
Hydrology
Marine Geology
Mathematics and Biology
Mathematics and Chemistry
Mathematics, Chemistry and Physics
Mathematics and Physics
Mathematics and Psychology
Microbiology and Immunology
Paleobiology
Psychology
Quaternary Studies

Major sequences are available in:

Major Anatomical Sciences
Major Biology
Major Chemistry
Major Crystallography
Major Geography
Major Geological Sciences
Major Mathematics
Major Meteorology
Major Microbiology and Immunology
Major Physics
Major Physiology
Major Psychology

Honours sequences are available in:

Honours in Anatomical Sciences
Honours Biochemistry
Honours Biology
Honours Chemistry
Honours Crystallography
Honours Geography
Honours Geological Sciences
Honours Mathematics
Honours Meteorology
Honours Physics
Honours Psychology
Honours Solid Earth Geophysics

TRANSFER STUDENTS

4.18.5

All students from other universities who wish to transfer credits to the Faculty of Science must apply in writing to:

The Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec

4.19 SCHOOL OF SOCIAL WORK
(in the Faculty of Graduate Studies and Research)

Director — D. E. WOODSWORTH, B.A. (Tor.), M.A. (Mich.), Ph.D. (Brandeis)

3506 University Street
Montreal 110, Quebec

4.19.1 DEGREES AND DIPLOMA OFFERED

In the Faculty of Arts:
Bachelor of Social Work (B.S.W.)

In the Faculty of Graduate Studies and Research:
Master of Social Work (M.S.W.)
Diploma in Advanced Social Work Practice

4.19.2 ENTRANCE REQUIREMENTS

4.19.2.1 The B.S.W.

Students are admitted to the three-year program in the Faculty of Arts after completion of a Diploma of Collegial Studies or equivalent on a competitive basis. Students with a B.A. with little social and behavioural science content may be admitted at the second year level.

4.19.2.2 The M.S.W.

Students are admitted to a one-year M.S.W. program upon completion of the B.S.W. with B standing. Students with a B.A. with strong preparation in social and behavioural sciences may be admitted to a qualifying year, and upon completion of this year with B standing, may be admitted to the M.S.W. year.

4.19.2.3 The Diploma in Advanced Social Work Practice

This program is available to persons who hold a M.S.W. degree with high standing, and three years' experience in practice.

For details see the *Announcement of the School of Social Work.*

5 SUMMER SESSION AND SUMMER SCHOOLS

5.1 SUMMER SESSION

The McGill University Summer Session allows students to take regular credit courses. The 1973 Summer Session will consist of two parts. The Pre-Summer Session will be held from May 16 to June 27; the Summer Session from July 3 to August 10. The curriculum will include a wide range of undergraduate and graduate studies, particularly in the Faculties of Arts, Education, Engineering, Management, Religious Studies, and Science.

Generally, a student will have to obtain a total of 90 credits at the university level to qualify for an undergraduate degree; thus, it is possible, by accredited Pre-Summer and Summer Session study, to complete the requirements in a shorter period of time.

Six-credit courses will be spread over 30 2-hour periods, 3-credit courses over 15 hour periods or 30 1-hour periods.

Pre-Summer Session and Summer Session are designed to meet the needs of various categories of participants including: students who wish to accelerate their studies; students from other universities who wish to transfer McGill credits to their own institutions; students who wish to obtain higher qualifications; students required to repeat courses failed during the winter session; students who wish to enrich their education; teachers who wish to upgrade their certificates or specialize in various areas.

French courses and Management courses will be offered through the McGill University Summer Session; however, the French Summer School, the Accountancy Summer School, and the Centre for Continuing Education will offer additional courses which are not administered by the Summer Session Office. Individuals interested in these specific programs, briefly described below, should contact the respective offices concerned.

Admission to the Summer Session program does not guarantee that students will be admitted to the regular winter program. Students who wish to apply to the winter session must do so before March 1; students who wish to apply for the Pre-Summer Session must do so by April 2, and those wishing to apply for the Summer Session must do so by May 15.

Pre-Summer Session and Summer Session students who are admitted into the winter session will be granted credit by the various departments concerned for courses taken in the summer, should these courses fit into the structured winter program that they plan to follow.

Full information concerning course offerings, applications, and requirements may be obtained from:

Miss Jeanne G. Marsolais,
Assistant Director,
McGill University Summer Session,
McGill University,
P.O. Box 6070, Montreal 101, Quebec.

5.2 SUMMER SCHOOLS

5.2.1 Accountancy

The Faculty of Management (Accountancy) invites applications from students both from Montreal and elsewhere for the summer school. The full curriculum of 90 hours will be spread over three weeks with six hours of courses per day per five-day week.

Montreal students are not required to live on campus though they are encouraged to do so. Students may take individual courses instead of registering for the whole school.

The following courses will be taught by professors and professional accountants under the direction of Professor Ronald G. Laybourn of the Faculty of Management:

	Hours
Financial Accounting, Theory	5
Theory applied in Problems	15
Cost and Management Accounting, Theory and Problems	10
Modern Auditing and Analysis of Accounting Systems	10
Investigations and Reports	10
Principles of Management:	
Planning and Control	5
Computer Concepts*	10
Planning and Development of Computer Information Systems	15
Federal Income	

*An *extra* Saturday session introducing Computer Concepts and Programming will be availabl for those who have had no previous instruction.

Full information may be obtained from:

The Accountancy Summer School
Faculty of Management, McGill University
Samuel Bronfman Building,
1001 Sherbrooke Street, West,
Montreal 101, Quebec.

5.2.2 French (in the Faculty of

The French Summer School, a residential school with an entirely French-speaking was established in 1904 and held its fifty-sixth session in 1972. Courses are off at two levels (undergraduate and graduate) in three divisions: advanced undergrad graduate and M.A.

The program is designed for:

1) Undergraduates who have completed two years towards the B.A. degree (at the CEGEP or College or University level) with a major in French; students whose knowledge of French is considered satisfactory but who are not majoring in French may be admitted in exceptional cases (Division B).

2) Those having obtained a B.A. degree or its equivalent with sufficient background in the French Language who wish to take courses at the graduate level, especially in Language and Civilization. (Division C)

3) Graduates who are presently working towards an M.A. or a Ph.D. at Universities other than McGill (Division C)

4) Teachers of French, at the Elementary or Secondary School, College or University level, who desire an effective "refresher" (Division B or C)

5) Graduates who wish to work towards an M.A. at McGill University by attending sessions at the French Summer School (M.A. with or without thesis). (Division D)

6) Graduates who wish to work towards the M.Ed. (Teaching French as a Second Language) at McGill University, and taking the program organized jointly by the French Summer School and the Faculty of Education of McGill University (Division D).

The courses carry credits towards McGill undergraduate and graduate degrees and these credits are also transferable to other North American universities and colleges.

Extracurricular cultural and social activities play a major role in the program. These activities are supplemented by the rich and varied resources of French-speaking Montreal. The teaching staff lives in the same residences as the students and mingles freely with them. The exclusive use of French at all times, in and out of class, is absolutely compulsory.

For complete information concerning applications, admission requirements and detailed booklet, please write to:

The Secretary
French Summer School
McGill University
Peterson Hall
P.O. Box 6070
Montreal 101, Quebec

6 CENTRE FOR CONTINUING EDUCATION

Strathcona Hall
772 Sherbrooke St. W.
Montreal 110, Quebec
392-5244

McGill University offers more than 250 evening courses through its Centre for Continuing Education in Montreal. These include courses in languages, social sciences, and music appreciation, engineering, business and management, and many other disciplines.

A course leading to a graduate diploma is offered in Management. A bachelor's degree is prerequisite for this.

Courses are offered leading to the following degrees, diplomas and certificates:

Bachelor of Education
Bachelor of Nursing
The Diploma in French-English, English-French Translation
The Certificate of Proficiency in French-English, English-French Translation
Certificate of Proficiency in English, French, German, Italian, Russian and Spanish

Certificate in Management
Diploma of the Canadian Bankers Association
Certificate of the Canadian Institute of Management
Diploma of the Certified General Accountants of the Province of Quebec
Diploma of the Chartered Institute of Secretaries
Diploma of the Institute of Chartered Accountants of Quebec
Diploma of the Society of Industrial and Cost Accountants

For details of courses offered, fees and registration, please contact the Centre at the above address.

7 FEES

The University reserves the right to make changes without notice in the published scale of fees.

Fees are not refundable, except under special conditions. See "Regulations Concerning Withdrawal from the University" below.

A student who transfers to a higher year from one faculty or degree course to another where higher tuition fees prevail shall be required to pay an amount equal to the difference in fees which existed between the two faculties or courses during the preceding session.

7.1 UNIVERSITY FEES

The fees for full time students include all the regular charges of the University for the full academic year for registration, tuition, laboratories, libraries, graduation, student services and Students' Society Fees.

7.1.1 FULL TIME COLLEGE EQUIVALENT STUDENTS

	Bona fide Quebec Students	*Non-Quebec Students*
Architecture	$460.	$746.
Arts	460.	638.
Commerce	465.	643.
Education:		
B.Ed.	460.	638.
B.Ed. (P.E. Major)	460.	658.
Engineering	460.	740.
Music	460.	638.
Nursing B.Sc. (N)	460.	615.
Physical and Occupational Therapy	460.	610.
Science	460.	703.

7.1.2 FULL TIME REGULAR STUDENTS

Agriculture	$525.
Architecture	
B.Sc. (Arch.)	746.
B.Arch.	746.
Arts	638.
Commerce	643.
Dentistry (laboratory equipment not included	690.
Education:	
B.Ed.	638.
B.Ed. (P.E. Major)	658.

B.Ed. (H. Ec. Major)	
1st and 2nd year (Macdonald College)	560.
3rd year (McGill)	638.
Diploma Programs	500.
Engineering	740.
Food Science	525.
Law	635.
Medicine	
1st, 2nd and 3rd years	800.
4th year	805.
Music	638.
Nursing	
B.Sc. (N)	615.
B.N.	615.
Physical and Occupational Therapy	610.
Religious Studies (except regular candidates for ordination)	585.
Science	703.
Social Work B.S.W.	638.
Graduate Studies (except M.B.A., M.S.W., and 2nd year M.L.S.)	652.
M.B.A.	717.
2nd year M.L.S.	312.
M.S.W.	654.

7.1.3 PARTIAL AND LIMITED STUDENTS

Per course	$150.
Per half course	$75.

The maximum fee charged for courses taken by partial students will not exceed the published fee for full time regular students, but in all other cases, partial students are subject to the following additional fees:

a)	If taking three or more courses —		
	Student Services	$27.	
	Students' Society (Average fee Actual varies by Faculty.)	28.	$55.
b)	If taking less than three courses —		
	Students' Society	$10.	
	or, if desiring full Student Services	37.	

7.1.4 SPECIAL FEES AND PENALTIES

*Application for Admission	$15.00
Late registration	25.00
Late payment fee (after specified date):	
1st 30 days	10.00
After 30 days	25.00
Graduation *in absentia*	5.00
Duplicate Student Identity Card	5.00
Duplicate diploma	10.00
Certified transcript of student's record:	
First two copies each	1.00
Additional copies made at the same time, each (up to 10 copies)	.10
Re-reading examination paper	10.00
Supplemental examinations, each paper	10.00
Changes in course (Arts, Science, Commerce), each change after specified change of course period	5.00

***Students already at McGill who are making application to a professional faculty or to the Faculty of Graduate Studies and Research (with the exception of the M.B.A. program) are not required to pay this fee.**

7.2 REGULATIONS FOR PAYMENT OF FEES

1. Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due within 10 days after registration, the second instalment before January 15, 1974.

2. Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 23, 1973, otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all returning students, either with their Sessional Reports of Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this award for payment of the first instalment of fees, must obtain from the Student Aid Office, McGill University, a *Permit to Delay Payment of Fees.*

The second instalment is due by January 15, 1974. A late payment fee as stated above is charged for payment after the specified dates.

3. Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

7.3 REGULATIONS CONCERNING WITHDRAWAL FROM THE UNIVERSITY

A student who wishes to leave the University during the academic year must, *whether or not he wishes to apply for remission of fees,* secure the permission of the Dean or Associate Dean of his Faculty. The Office of the Associate Dean will supply the necessary form which must be completed and submitted together with the Student Identity Card. A student considering withdrawal is strongly advised to consult his Dean before making a final decision. Fees for the term in which the student withdraws are not refundable, except under special conditions. A student wishing to apply for remission of fees must consult the Chief Accountant.

8 CALENDAR OF DATES 1973-74

1973

April 2, Monday	Deadline for receipt of applications for Pre-Summer Session.
May 15, Tuesday	Deadline for receipt of applications for Summer Session.
May 16, Wednesday, to June 27, Wednesday	Pre-Summer Session.
May 21, Monday	Victoria Day. Administrative Offices will be closed.
May 21, Monday to June 29, Friday	Special B.S.W. program Summer Session.
June 1, Friday	Convocation in Medicine and Dentistry.
June 2, Saturday	Convocation in Agriculture at Macdonald Clolege.
June 8, Friday	Convocations in all other faculties and schools.
June 25, Monday	St. Jean Baptiste Day. Administrative Offices will be closed.
June 25, Monday to August 12, Sunday	French Summer School.
June 28, Thursday to June 29, Friday	Pre-Summer Session examinations.
July 2, Monday	Dominion Day. Administrative Offices will be closed.
July 3, Tuesday	Last day for submitting completed applications for admission to most departments in the Faculty of Graduate Studies and Research.
July 3, Tuesday to August 10, Friday	Summer Session.
August 11, Saturday and August 13, Monday	Summer Session examinations.
August 13, Monday to August 24, Friday	Supplemental examinations in all College Equivalent programs and in degree programs in Arts, Science, Management, Engineering, Architecture, B.Sc.(Arch.), Physical Therapy, Occupational Therapy, Religious Studies, Nursing and degree and Diploma programs in Education.
August 20, Monday	Freshman Orientation Service and pre-registration counselling begin in Arts, Education, Management, Science, and Physical and Occupational Therapy.
	Last day for submitting Doctoral theses for Fall Convocation.
August 21, Tuesday	Supplemental examinations begin in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
August 25, Saturday to September 5, Wednesday	Architecture Sketching School.
August 27, Monday	Last day for submitting Master's theses for Fall Convocation.
August 29, Wednesday	Students registering for Agronomy 340-350A report for class at 8:00 a.m. and for Soil Science 372-420A at 9:00 a.m. (Macdonald College).
	Orientation program for First year Dentistry students.

GENERAL ANNOUNCEMENT

September 3, Monday	Labour Day. Administrative Offices will be closed.
September 4, Tuesday	Students registering for Renewable Resources Development 375-400A and Zoology 349-418A report for class at 9:00 a.m. (Macdonald College).
September 4, Tuesday to September 13, Thursday	Enrolment placement tests, auditions, and interviews in Music. Practical examinations in Music (graduands only).
September 4, Tuesday to September 19, Wednesday	Registration period:

Sep. 4, Tues. Registration in all years Medicine Dentistry, and Law (9:00 a.m. to 7:00 p.m.)

Sep. 5, Wed. Registration in diploma programs in Education (10:00 a.m. to 4:00 p.m.)

Sep. 6, Thurs. and Sep. 7, Fri. Registration in University Level Engineering, Architecture and B.Sc.(Arch.) (10:00 a.m. to 4:00 p.m.)

Sep. 10, Mon. Registration in University Level Arts, Arts Partials, B.Ed. U1, Religious Studies and B.S.W. (9:00 a.m. to 5:00 p.m.); and all students at Macdonald College (See Sep. 10 below).

Sep. 11 Tues. Registration in University Level Arts, Arts Partials, and B.Ed. U2 (9:00 a.m. to 5:00 p.m.)

Sep. 12, Wed. Registration in University Level Arts, Arts Partials, Management, and B.Ed. U3 (9:00 a.m. to 5:00 p.m.)

Sep. 13, Thurs. Registration in University Level Science, Science Partials, Physical and Occupational Therapy, and B.Sc.(N) (9:00 a.m. to 5:00 p.m.)

Sep. 14, Fri. Registration in University Level Science, Science Partials, and all years Music. (9:00 a.m. to 5:00 p.m.)

Sep. 17, Mon. Registration in University Level Science, Science Partials, and B.N. 1 (9:00 a.m. to 5:00 p.m.)

Sep. 18, Tues. Registration in all E2 Engineering, and in E2 Arts, Science, Education, Management, Nursing and Physical and Occupational Therapy, and B.N. 2. (9:00 a.m. to 5:00 p.m.)

Sep. 19, Wed. Registration in E2 Arts, Science, Education, Management, Nursing, and Physical and Occupational Therapy (9:00 a.m. to 5:00 p.m.)

eptember 5, Wednesday	Lectures begin in First, Second and Third years Medicine, in all years Dentistry and in all years Law.
	Enrolment in School of Nursing for B.N. 1 students.
eptember 5, Wednesday to September 7, Friday	Pre-registration counselling in University Level Education programs.
	Advance registration Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
eptember 6, Thursday	Enrolment of M.S.W. and Advanced Social Work Practice Diploma students.
eptember 7, Friday	Enrolment of First year students in the Graduate School of Library Science.
eptember 7, Friday to September 21, Friday	Registration in the Faculty of Graduate Studies and Research in individual departments.
eptember 10, Monday	Lectures begin in University Level programs in Engineering, Architecture, and B.Sc.(Arch.).
	Fall registration of all new students at Macdonald College (9:00 a.m. to 12 noon). Afternoon Orientation Program required of all new students at Macdonald College. Registration of all returning students in all years at Macdonald College (1:30 to 4:00 p.m.).
	Lectures begin in M.S.W. and Advanced Social Work Practice Diploma programs and in First year Graduate School of Library Science.
	Diploma programs in Education begin.
eptember 11, Tuesday	Lectures begin for all years in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
eptember 12, Wednesday	Lectures begin in Second year Graduate School of Library Science.
eptember 17, Monday	Instruction begins in Music.
eptember 17, Monday to October 5, Friday	Course change period in Music.
eptember 20, Thursday	Lectures begin in all College Equivalent programs and in University Level programs in Arts, Science, Education, Management, B.S.W., Religious Studies, Graduate Studies and Research, Nursing, Physical and Occupational Therapy.
eptember 21, Friday	Last day for registration in the Faculty of Graduate Studies and Research.
eptember 24, Monday	Last day for submitting reports on Doctoral theses.
eptember 28, Friday	Last day for first term course changes in University Level programs in Faculty of Engineering.
ctober 1, Monday	Last day for submitting reports on Master's theses.
	Late registration in all faculties.
ctober 4, Thursday to October 12, Friday	Change of course period in Faculties of Arts and Science.
ctober 5, Friday	Last day for course changes for first term courses in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
ctober 8, Monday	Thanksgiving. Lectures cancelled. Administrative Offices will be closed.

GENERAL ANNOUNCEMENT

October 12, Friday	Last day for change of courses in B.S.W. program.
October 24, Wednesday to October 27, Saturday	Fall Fair and College Royal at Macdonald College.
October 26, Friday	Deadline for withdrawing (W) from 'A' courses in Faculties of Arts, Science and Education.
November 1, Thursday	Last day for dropping first term courses at Macdonald College, in the Faculty of Music and in most Departments in the Faculty of Graduate Studies and Research.
November 6, Tuesday	Fall Convocation.
November 11, Sunday	Remembrance Day.
November 19, Monday to November 23, Friday	Practical examinations in Music.
November 30, Friday	Deadline for withdrawing (W) from 'D' courses in Faculties of Arts, Science and Education.
December 5, Wednesday	Last day of lectures in first term Agriculture, Food Science and Diploma in Agriculture programs.
December 7, Friday	Last day of first term lectures in University Level programs in Engineering, Architecture and B.Sc.(Arch.).
December 10, Monday to December 14, Friday	Examinations in first term courses in Graduate School of Library Science.
December 10, Monday to December 19, Wednesday	First term examinations in Agriculture, Food Science and Diploma in Agriculture programs.
December 11, Tuesday	Last day of first term lectures in Law.
December 12, Wednesday to December 21, Friday	Examinations in first term courses in University Level programs in Engineering, Architecture and B.Sc.(Arch.).
December 13, Thursday to December 22, Saturday	Examinations in first term courses in Law.
December 14, Friday	Last day of first term lectures in diploma programs in Education, and in First year Dentistry.
December 17, Monday to December 19, Wednesday	Examinations and mid-year evaluations in diploma programs in Education.
December 17, Monday to December 21, Friday	Examinations in first term Department of Music Theory courses.
December 19, Wednesday	Last day of first term lectures in all other programs except Music.
December 21, Friday	End of first term in Music.
December 25, Tuesday	Christmas Day. Administrative Offices will be closed from 5:00 p.m. Friday, Dec. 21, 1973, until 9:00 a.m. Wednesday, Jan. 2, 1974.
	1974
January 1, Tuesday	New Year's Day. Administrative Offices will be closed until Wednesday, Jan. 2, at 9:00 a.m.
January 2, Wednesday	Second term begins in Medicine and in First year Dentistry.
January 3, Thursday to January 18, Friday	Examinations in first term courses in all College Equivalent programs, and in University Level programs in Arts, Science, Education, Management, Nursing, Physical and Occupational Therapy, B.S.W., and Religious Studies.

January 4, Friday	Second term registration, new students in Faculty of Agriculture and School of Food Science.
January 7, Monday	Second term begins in Agriculture, Food Science, Diploma program in Agriculture, Law, Music, Library Science, M.S.W., diploma programs in Education, and in Second, Third and Fourth years Dentistry.
	Field practice resumes in Second and Third years B.S.W.
January 7, Monday to January 25, Friday	Second term course change period in Music.
January 17, Thursday	Second term registration for new students in Arts, Science, Education, Engineering, and Management.
January 21, Monday	Second term begins in all College Equivalent programs and in University Level programs in Arts, Science, Education, Engineering, Architecture, B.Sc.(Arch.), Management, Religious Studies, Graduate Studies and Research, Nursing, B.S.W., and Physical and Occupational Therapy.
January 28, Monday to February 4, Monday	Change of course period for 'B' courses only in Faculties of Arts, Science and Education.
January 30, Wednesday to February 2, Saturday	Winter Carnival at Macdonald College.
January 31, Thursday	Last day for second term course changes in most Departments in the Faculty of Graduate Studies and Research.
February 6, Wednesday	Last day for course changes for second term courses at Macdonald College.
February 8, Friday	Last day for second term course changes in University Level programs in Faculty of Engineering.
February 10, Sunday	Macdonald College Founder's Day.
February 21, Thursday	Last day for dropping second term courses without penalty in Music.
February 22, Friday	Deadline for withdrawing (W) from 'B' courses in Faculties of Arts, Science and Education.
February 25, Monday to February 28, Thursday	Practical examinations in Music.
February 25, Monday to March 1, Friday	Study week in Law.
March 1, Friday	Last day for dropping second term courses without penalty at Macdonald College.
March 1, Friday and March 2, Saturday	Mid-term weekend holiday (Montreal Campus). Lectures cancelled.
March 2, Saturday to March 5, Tuesday	Mid-term holiday at Macdonald College.
March 4, Monday to March 8, Friday	Entrance auditions for Music applicants.
March 20, Wednesday	Last day for submitting Doctoral theses for Spring Convocation.
March 27, Wednesday	Last day for submitting Master's theses for Spring Convocation.
April 9, Tuesday	Last day of lectures in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.

GENERAL ANNOUNCEMENT

April 11, Thursday	Last day of lectures in Third and Fourth years Dentistry. Last day of instruction in Music.
April 12, Friday to April 15, Monday (incl.)	Easter. Lectures cancelled. Administrative Offices will be closed from 5:00 p.m. Thursday, Apr. 11, until 9:00 a.m. Tuesday, Apr. 16.
April 16, Tuesday to April 26, Friday	Second term examinations in Faculty of Agriculture, School of Food Science and Diploma in Agriculture programs.
April 16, Tuesday to May 10, Friday	Examinations in Fourth year Dentistry.
April 17, Wednesday	Examinations begin in lecture courses in Music.
April 19, Friday	Last day of lectures for all other students except those in Music, Library Science and diploma programs in Education.
April 22, Monday to April 26, Friday	Entrance auditions for Music applicants. Examinations in Graduate School of Library Science.
April 22, Monday to May 10, Friday	Examinations in Third year Dentistry.
April 22, Monday to May 8, Wednesday (tentative ending date)	Examinations in all College Equivalent programs and in University Level programs in Arts, Science, Education, Engineering, Architecture, B.Sc.(Arch.), Management, Nursing, Physical and Occupational Therapy, B.S.W. and Religious Studies.
April 24, Wednesday	Examinations begin in Law.
April 26, Friday	Last day of lectures in diploma programs in Education and in Second year Dentistry.
April 29, Monday to May 3, Friday	Examinations in diploma programs in Education.
April 29, Monday to May 10, Friday	Surveying school of the Department of Agricultural Engineering (336-214E). (Macdonald College). Practical examinations in Music.
April 29, Monday to May 17, Friday	Examinations in Second year Dentistry.
May 3, Friday	Last day for submitting reports on Doctoral and Master's theses for Spring Convocation. Last day of lectures in First year Dentistry.
May 13, Monday to May 24, Friday	Examinations in First year Dentistry.
May 14, Tuesday	Last day for Doctoral oral examinations.
May 16, Thursday to May 24, Friday	Entrance auditions for Music applicants.
May 20, Monday	Victoria Day. Administrative Offices will be closed.
May 27, Monday	Senate Meeting for granting degrees and diplomas.
June 5, Wednesday to June 8, Saturday	Convocations.

McLENNAN AND REDPATH LIBRARIES CALENDAR 1973-74

June 1, Friday to June 8, Friday	Convocations. Libraries open.
June 25, Monday	St. Jean Baptiste Day. Libraries closed.
July 2, Monday	Canada Day. Libraries closed.
September 3, Monday	Labour Day. Libraries closed.
September 20, Thursday	Sessional hours in the libraries begin.
October 8, Monday	Thanksgiving. Libraries open for study only.
November 6, Tuesday	Fall Convocation. Libraries open.
November 11, Sunday	Remembrance Day. Libraries open for study only.
December 19, Wednesday to December 22, Saturday	Libraries open.
December 23, Sunday and December 24, Monday	Libraries open for study only.
December 25, Tuesday	Christmas Day. Libraries closed.
December 26, Wednesday	Libraries open for study only.
December 27, Thursday to December 29, Saturday	Libraries open.
December 30, Sunday and December 31, Monday	Libraries open for study only.
1974	
January 1, Tuesday	New Year's Day. Libraries closed.
January 2, Wednesday	Sessional hours in libraries resume.
March 1, Friday and March 2, Saturday	Mid-term weekend holiday. Libraries open.
April 12, Friday	Good Friday. Libraries open for study only.
April 13, Saturday	Libraries open.
April 14, Sunday	Libraries open for study only.
April 15, Monday	Easter Monday. Libraries open.
May 20, Monday	Victoria Day. Libraries closed.

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Directory of Staff

1972-1973

ABRAMOVITCH, HENRY, DR 181-1646
BSC (MCGILL), M SC (QU), MD (MCGILL)
ASSISTANT PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOLOGY ▮ IMMUNOLOG.
MICROBIOLOGY AND IMMUN,PATHOLOGICAL INST
4907 MACDONALD AVE, MONTREAL QUE

ABRAMSON, HARVEY D, PROF 392-8276
B A (BROOKLYN COLLEGE), M A (WISCONSIN),
DOCTORATE (ST ANDREWS)
ASSISTANT PROFESSOR SCHOOL OF COMPUTING SCIENCE
BURNSIDE HALL

ABU HAKIMA, AHMAD M, DR 392-5198
BA (CAIRO), M A (CAIRO), M A (CAIRO)
PH D (LONDON)
VISITING PROFESSOR INSTITUTE OF ISLAMIC STUDIES
INSTITUTE OF ISLAMIC STU, LEACOCK BUILDING
2060 PL HENRI BOURASSA, APT 36 MONTREAL QUE

ABU MERHY, SELMA JEAN, MRS 392-5432
DEPT OF CHEMICAL ENG, MCCONNELL ENGR BLDG
2060 PLACE HENRI BOURASS, APT 36, MONTREAL QUE

ACHIM, NORMAND, MR 392-3051
CATALOGUING DEPT, U L P, MCLENNAN LIBRARY
1330 ST LOUIS, ST LAURENT QUE 747-1062

ACHONG, EAMON H, DR
LECTURER DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, MONTREAL GENERAL HOSP
32 MERTON CRESCENT, HAMPSTEAD

ACKMAN, CHARLES F D, DR
B SC (MT ALLISON), M D C M (MCGILL),
M SC (MCGILL)
F R C S
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE
4690 WESTMOUNT AVE, WESTMOUNT 6 QUE

ADAM, KENNETH S, DR 392-8096
BA (ALBERTA), MD (TORONTO)
CRCC, CRCPPQ
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
HEALTH SERVICE-MCGILL, 517 PINE AVE WEST
611 VICTORIA AVE, WESTMOUNT 217 QUE 488-6044

ADAM, ROHINI, MRS 392-4929
LIBRARIAN F.D. ADAMS LIBRARY
3450 UNIVERSITY ST
7581 BIRNAM ST, MONTREAL 303 QUE 276-8306

ADAMS, CHARLES JOSEPH, PROF 392-5193
BA (BAYLOR UNIVERSITY),
PH D (UNIV OF CHICAGO)
DIRECTOR INSTITUTE OF ISLAMIC STUDIES
PROFESSOR INSTITUTE OF ISLAMIC STUDIES
INSTITUTE OF ISLAMIC STU, STEPHEN LEACOCK
445 VICTORIA AVE, MONTREAL 217 QUE 931-8433

ADAMS, JENNIFER H, MISS
UNDERGRAD LIBRARY, REDPATH LIB
3495 DECARIE BLVD, APT 3, MONTREAL QUE

ADAMS, SAMUEL T, DR
BA (MCGILL), MD CM (MCGILL)
Q A O
DEPARTMENT CHAIRMAN RESIDENCY PROGRAMME
PROFESSOR DEPT OF OPHTHALMOLOGY
DIRECTOR OF RESIDENCY
OPTHAMOLOGY MTL GEN HOSP, 1650 CEDAR AVE
40 TRAFALGAR PLACE, MONTREAL 109 QUE 932-3026

ADDISON, JOHN R, PROF 392-5150
BSC (MCGILL), B ENG (MCG), M SC (MCG)
PH D (MCGILL)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, MACDONALD PHYSICS BLDG
4517 MARIETTE AVE, MONTREAL QUE 488-7398

ADKINS, ARLIE ANDREW, PROF 392-8881
BA (WASHINGTON COLLEGE),
TH B (PIEDMONT BIBLE COLL),
MA (APPALACHIAN STATE), D ED (FLORIDA)
QPGA CCOPQ
PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
14410 LYONS, PIERREFONDS 930 QUE 626-3058

ADLER, ERIC L, PROF 392-5395
BSC (LONDON), M A SC (TOR), PHD (MCGILL)
CEQ, M I E E E
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
2211 CLOSSE ST APT 9, MONTREAL 108 QUE 933-8110

ADLER, RUTH, MRS 392-4331
B A (MCGILL)
OSLER LIBRARY, MCINTYRE MED
5785 SIR WALTER SCOTT AV, APT 412 COTE ST LUC,
MONTREAL QUE

AGUAYO, ALBERT J, DR 937-6011
FRASER AWARD 1972
M D (CORDOBA)
, FELLOW RCP 1965
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
FRASER SCHOLAR UNIVERSITY CLINIC M G H
TUTOR RESIDENCY PROGRAMME
RESIDENCY PROGRAMME, MONTREAL GENERAL HOSP
648 BELMONT AVE, WESTMOUNT 217 QUE 484-2837

AHMED, ABDUL MALEK, PROF 392-5475
B SC (DACCA), PH D (MCGILL)
ASSISTANT PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
5560 MCLYNN AVE, MONTREAL 252 QUE 849-3994

AHMED, M NISAR, DR 181-1781
B SC (PUNJAB), C R C P C (ROY CANADA)
CRCP(C) FRCP(C)
ASSISTANT PROFESSOR PATHOLOGY SERVICE
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY SERVICE, 3775 UNIVERSITY ST
3620 LORNE CRESCENT, APT 616, MONTREAL 842-5718

AIKENS, MERIBAH, MRS 392-5084
FACULTY OF ARTS & SC, DAWSON HALL
33 KENASTON AVE, MONTREAL 305 QUE 738-4458

AIKMAN, ROBERT HOWARD, DR
B SC (MCG), M D C M (MCG)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBSTET AND GYNAECOLOGY, MONTREAL GENERAL HOSP
155 DOBIE AVE, MONTREAL 304 QUE 932-0725

AKSICH, KAY O, MRS 392-4682
ASSISTANT DIRECTOR PERSONNEL DEPARTMENT
F CYRIL JAMES BLDG
233 CASTLE RD, BEACONSFIELD QUE 695-1162

ALBERT, J R, DR
M D (BRUSSELS)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
780 LAKESHORE DR, DORVAL QUE

ALDOUS, NORMAN R, DR
MDCM (QUEENS)
R C P S, C P S Q
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
INST COMM & FAM PSYCH, 4333 COTE ST CATHERINE,
MONTREAL 249 PQ 341-6211

ALEXANDER, WALTER J, DR
BSC (ST FRANCIS XAVIER), MDCM (MCGILL)
FRCP(C)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
MONTREAL CHILDRENS HOSP, 2300 TUPPER,
MONTREAL 108 QUE
3844 HAMPTON AVE, N D G, MONTREAL QUE

ALGIE, MARY ELEANOR, MRS 453-6580
MCLENNAN TRAVELLING LIB, MACDONALD COLLEGE 800,
QUEBEC
20786 LAKESHORE RD, BAIE D URFE QUE 453-4571

ALI KHAN, ZAFER, DR 453-6580
BSC (HONS) (BIHAR UNIVERSITY), M SC (KARACHI),
PHD (TULANE)
ASSOCIATE PROFESSOR MICROBIOLOGY ▮ IMMUNOLOGY
PATHOLOGY INSTITUTE
9 LAKEVIEW ST, BAIE D URFE P Q 453-7516

ALI-KHAN, FELICITY E A, DR 453-6580
BSC (HONS) (CANTERBURY NZ), PHD (MCGILL)
ESPQ
LECTURER DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUE
9 LAKEVIEW, BAIE D URFE P Q

ALI, MUZAFFAR, MR 392-5197
MLS (MCGILL)
CBPPQ
LIBRARIAN INST ISLAMIC STUDIES LIBRARY
ISLAMIC STUDIES LIBRARY, STEPHEN LEACOCK BLDG
4140 ST URBAIN ST, APT 1 MONTREAL QUE 288-3903

ALISON, DELISE, MRS 392-5991
REDPATH MUSEUM
3563 DUROCHER ST, APT 9, MONTREAL 130 QUE

ALLAN, CHARLES M, DR
B S C (MCGILL), M D C M (MCGILL),
DIP SURG (MCGILL), M SC (MCGILL)
LECTURER DEPARTMENT OF SURGERY
SURGERY QUEEN ELIZ HOSP,
QUEEN ELIZABETH HOSPITAL,2100 MARLOWE AVE
42 WESTLAND DRIVE, MONTREAL WEST QUE 481-1503

ALLAN, IVY I, MRS 453-6580
ADMINISTRATION, MACDONALD COLLEGE 800, QUE
114 CHESTNUT PLACE, PINCOURT, QUEBEC

ALLEN, EDWIN ANDREW, MR 392-5304
DIRECTOR MCGILL REPORTER
MCGILL REPORTER, F CYRIL JAMES BUILDING
32 BRUNET RD, POINTE CLAIRE QUE 695-5971

ALLEN, FLORA MOYRA, PROF 392-5029
BN (MCGILL), M A (CHIC), PHD (STANFORD)
PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
237 FOREST RD, BEACONSFIELD QUE 695-4098

ALTOSAAR, LAINE, MRS 453-6580
LIBRARY MACDONALD COLL, MACDONALD COLLEGE 800, QUE
86 CAMBRIDGE RD, BAIE D URFE QUE 453-4728

ALVI, SAJIDA, MS
B A (PUNJAB), M A (PUNJAB), PH D (PUNJAB)
LECTURER INSTITUTE OF ISLAMIC STUDIES
LEACOCK BUILDING
21 PRATLEY DR, WILLOWDALE, ONTARIO

ALWARD, RONALD, MR 453-6580
B ENG (WESTERN ONT), M SC (WESTERN ONT)
BRACE RESEARCH INST, MACDONALD COLLEGE 800, QUE
3585 STE FAMILLE ST, MONTREAL QUE 849-6847

AMASUNO, MARCELINO, PROF 392-4615
BA (VALLADOLID), LIC (SALAMANCA)
ASSISTANT PROFESSOR SPANISH
3495 PEEL ST
4140 MARCIL AVE, MONTREAL QUE

AMBROSE, ERNEST R, DR 392-4919
D D S (MCGILL)
F I C D
PROFESSOR FACULTY OF DENTISTRY
DEAN FACULTY OF DENTISTRY
DENTISTRY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3420 WESTMORE AVE, MONTREAL 28 QUE

AMEY, LLOYD RONALD, PROF 392-5807
B ECON (ADELAIDE SOUTH AUST),
B A (NOTTINGHAM U), PH D (NOTTINGHAM U)
A C I S, A A S A
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
341 KENSINGTON AVE, WESTMOUNT 215 QUE

AMIN, MOHAMMED M, DR 842-1251
CRCP, FRCP(C)
MBBS (KARACHI), DIP PSYCHIATRY (MCGILL),
DPM (R COLL PSYCHIATRISTS)
CLINICAL DIR., D P M
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, ALLAN MEMORIAL INST
5527 WESTBOURNE AVE, COTE SAINT LUC,
MONTREAL 267 QUE

AMOS, MARY ELIZABETH, MRS 392-4421
UNIVERSITY PRESS, 3458 REDPATH ST
6702 SHERBROOKE ST W, MONTREAL 282 QUE 488-9877

ANANTHANARAYANAN, R, MRS 392-5921
B SC (KERALA), M ED (MADRAS)
REDPATH LIBRARY, MCLENNAN LIB
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842-7347

ANANTHARAMAIAH, J V, DR
M B B S (KARNATIC UNIV)
R C P S (C), Q C P P, D P M
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DOUGLAS HOSP PSYCH DEPT, 6875 LASALLE BLVD,
MONTREAL 204 QUE
315 GLENGARRY, TOWN OF MOUNT ROYAL QUE 738-4811

ANASTASSIADIS, PHOEBUS, PROF 453-6580
BSC (ATHENS), M ED (RUTGERS), PH D (MCGILL)
PROFESSOR DEPARTMENT OF AGRIC CHEMISTRY
AGRICULTURAL CHEMISTRY, MACDONALD COLLEGE 800,
QUE
BOX 131, MACDONALD COLLEGE P O QU 453-4307

ANDERMANN, FREDERICK, DR 181-1849
BSC (MCGILL), B SC (MCG), MD (MONTREAL)
F R C P, Q C P S
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
ASSOC NEUROLOGIST LABORATORY-E E G
ASST PROF DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, M N I
1400 PINE AVE W APT 904, MONTREAL P Q 843-5286

ANDERSON, BRUCE, PROF 392-5422
B ARCH (MCGILL), M ARCH (HARVARD)
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE DEPT, MCCONNELL ENG BLDG
13 PARKLAND AVE, POINTE CLAIRE QUE

ANDERSON, HARRY SHELDON, PROF 392-4985
BA (UNIV OF PITTSBURGH), PH D (TEMPLE UNIV)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
58 SOMERVILLE AVE, MONTREAL QUE 482-8930

ANDERSON, LINDA E, MISS 392-5227
BA (S G W U)
MCGILL GREEK PROJECT, LEACOCK BUILDING
3464 HUTCHISON ST, APT 706, MONTREAL 130 QUE

ANDERSON, MAUREEN, MISS 392-5408
BA (MCGILL)
SCH OF ARCHITECTURE, RM 14, MCCONNELL ENG BLDG
4125 BLUERIDGE CRESC, APT 42, MONTREAL 935-3082

ANDERSON, WILLIAM J, PROF 392-8281
B ENG (MCGILL), PH D (MCGILL)
CEPQ
VISITING ASST PROF MATHEMATICS
BURNSIDE HALL
12 PARK PLACE, APT 3, WESTMOUNT QUE 933-9971

ANDREASSEN, JOHN C L, MR 392-5356
PHB (WISCONSIN), M A (L S U)
ARCHIVIST UNIVERSITY ARCHIVES
REDPATH LIBRARY
65 ST LOUIS ST, ST EUSTACHE QUE 473-5760

ANDREWS, PAULINE, MRS 453-6580
EXTENSION DEPT, MACDONALD COLLEGE 800, QUE
PO BOX 167, MACDONALD COLLEGE 800, QUEBEC

ANGENOT, MARCEL, PROF 392-4447
CAND PHIL (BRUSSELS), L PHIL (BRUSSELS),
DOCT PHIL (BRUSSELS)
ASSOCIATE PROFESSOR FRENCH
STAFF FRENCH COURSES, PETERSON HALL
8 CHATILLON ST, LORRAINE QUE 625-4977

ANGLIKER, COLIN C J, DR 392-5010
MB BCH BAO (QUEENS BELFAST),
DIP PSYCH (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
509 PINE AVE W
103 BALLANTYNE AVE NORTH, MONTREAL WEST 263 QUE
482-2786

ANTHONISEN, N R, DR 181-1764
BA (DARTMOUTH), MD (HARVARD)

ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLINIC, RESPIRATORY DIV R V H
5050 BLVD ST JOSEPH, LACHINE QUE 637-3347

ANTONOVYCH, MYROSLAVA, MRS 392-5328
BLS (MCGILL). M A (U OF M)
LIBRARIAN MCLENNAN LIBRARY - CAT
CATALOGUING, MCLENNAN LIB
3804 OXFORD AVE, MONTREAL QUE 482-6655

AOKI, FRED Y, DR 937-6011
M D (MANITOBA)
FRCP(C)
LECTURER RESIDENCY PROGRAMME
LECTURER DEPT OF MEDICINE & CLIN MED
DEPT OF MEDICINE & CLIN, MTL GEN HOSP,
1650 CEDAR AVE
1212 PINE AVE W APT 204, MONTREAL 112 QUE
844-1868

ARAZOZA, HECTOR DE, MR 392-8299
LICENDIADO (HAVANA)
LECTURER MATHEMATICS
BURNSIDE HALL
3575 UNIVERSITY APT 411, MONTREAL 112 QUEBEC
282-4502

ARBITMAN, RUBEN, DR
M D (VALLES COLOMBIA)
E C F M G, L M C C
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, QUEEN ELIZABETH HOSP
57 STRATHCONA DR, TOWN OF MOUNT ROYAL 305,
QUEBEC

ARCAND, BERNARD, MR 392-5181
B A (MONTREAL), B SC (MONTREAL), M A (MONTREAL)
PH D (CAMBR245266)
ASSISTANT PROFESSOR ANTHROPOLOGY
264 ST PAUL EST APT7, MONTREAL QUE

ARENDT-RACINE, EVA C, DR
BA (MCGILL), FRCPC (MCGILL)
SRPQ
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
1745 CEDAR AVE APT 602, MONTREAL 109 QUE
937-7371

ARIDA, WEDAD, MISS 392-5273
CNTR LEARNING AND DEV, STEWART BIO BLDG
745 BUCHANAN AVE, VILLE ST LAURENT QUE

ARMIN, JOHN OTTO, MR 392-4558
LECTURER FACULTY OF MUSIC
555 SHERBROOKE ST. W.
570 MILTON APT 12, MONTREAL 130 PQ 849-9577

ARMOUR, JOHN, MR 392-5316
A A C C A
COMPTROLLER ADMINISTRATION
ADMINISTRATION, F CYRIL JAMES BLDG
35 ROCKWOOD DR, DOLLARD DES ORMEAUX QUE
684-7833

ARMSTRONG, BRUCE PARKIN, DR
HEALTH SERVICE - MACDONA
163 NORTHVIEW AVE, MONTREAL 263 QUE 486-6579

ARMSTRONG, DONALD E, PROF 392-5809
ARTS (ALBERTA), B COM (ALTA), PHD (MCGILL)
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
3 WESTLAND DR, MONTREAL WEST QUE 484-9724

ARMSTRONG, DOUGLAS L, MR
BAHON (UOFW)
LIBRARIAN MEDICAL LIBRARY
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3455 AYLMER ST, APT 1010, MONTREAL 130 QUE

ARMSTRONG, MARGARET E, MISS 937-6011
SURG.MTL.GEN.HOSP., 1650 CEDAR AVE,
MONTREAL 109 QUE
4196 HINGSTON AVENUE, MONTREAL QUE 937-6011

ARONOFF, A, DR 842-1251
B SC (MCGILL), M D C M (MCGILL)
F R C P, C P S Q, L M C C, F A C P
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
106 CORNWALL AVE, MONTREAL 304 PQ

ARONOVITCH, MICHAEL, DR
B SC (MCGILL), M D C M (MCGILL)
FRCP(C), FCCP, FACP
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, ROYAL VICTORIA HOS
4119 SHERBROOKE ST W, MONTREAL QUE

ARRONET, GEORGE H, DR
M D (BERLIN)
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTET & GYNAECOLOGY
3156 TRAFALGAR HEIGHTS, MONTREAL 218 P Q
933-3505

ARSENAULT, JOHN, DR
B A (LAVAL), M D (LAVAL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLINICAL MED, ROYAL VICTORIA HOSP
130 ARROWHEAD, POINTE CLAIRE QUE

ARSENAULT, KATHLEEN, MISS 392-3076
DEC (CEGEP ROSEMONT)
INDUSTRIAL RELATIONS CEN, BANK,
762 SHERBROOKE WEST
3236 BOSSUET, MONTREAL 426 PQ 259-1560

ASCH, DOROTHY, MISS 392-5310
ADMIN ASSISTANT ADMINISTRATION
OFF OF BUSINESS MANAGER, ADMINISTRATION BLDG
6550 SHERBROOKE ST W, APT 517 MONTREAL 261 QUE
486-0450

ASSWAD, ANTOINE, DR
MB CHB (ALEXANDRIA)
FRCS(C)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOL, R V H

AST, HELGA, DR
CAND MED (STOCKHOLM), DIP PSYCH (QUE),
MDCM (MCGILL)
FRCPC
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP, LAKESHORE GENERAL HOSP
LAKESHORE GENERAL HOSP, 160 STILLVIEW,
POINTE CLAIRE QUEBEC 695-1310

ASTBURY, EFFIE C, PROF 392-5934
BA (MCGILL), B L S (MCG), MLS (TORONTO)
QLA, CPQ
PROFESSOR GRAD SCHOOL OF LIBRARY SCIENCE
DIRECTOR GRAD SCHOOL OF LIBRARY SCIENCE
GRAD SCHOOL LIB SC, MCLENNAN LIBRARY
3450 DRUMMOND, APT 1414, MONTREAL 109 QUE
849-3956

ASTON, EDITH P, PROF 392-4307
PHYSI THER (MCGILL), BSCP & OT (MCGILL)
PQPT
ASSISTANT PROFESSOR
PHYSICAL▮OCCUPATIONAL THERAPY
PHYS & OCC THERAPY, DAVIS HOUSE
320 61ST AVE, CHOMEDEY QUE 681-8371

ATKINSON, LORRAINE, MISS 392-5929
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
183 GARDENVILLE, LONGUEUIL QUE

ATKINSON, SUZANNE, MRS 392-8097
OFFICE OF ED DEVELOPMENT, RM 615 ADMIN BLDG
100 COTE VERTU, APT 408, ST LAURENT 380 QUE

AUCLAIR, ALLAN, PROF 392-4652
B SC (MCGILL)
ASSISTANT PROFESSOR BIOLOGY
STEWART BIOL BLDG, MCGILL CAMPUS
314 STREAM AVE, DORVAL QUE 631-5096

AUDERSET, CLAUDE, DR 392-8295
PHD (FRIBOURG)
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
3455 AYLMER, MONTREAL 130 QUE 843-3479

AUSTIN, GEOFFREY LEONARD, PROF 392-5135
BA (CAMBRIDGE), MSC (CANTERBURY),

MA (CAMBRIDGE), PHD (CANTERBURY)
ASSISTANT PROFESSOR PHYSICS
MACDONALD PHYSICS BLDG
12 RUE CHATILLON, LORRAINE QUE 622-6333

AUSTIN, LYDIA BRONWEN, MRS 392-5132
METEOROLOGY, PHYSICS DEPT
12 CHATILLON, LORRAINE QUE 622-6333

AUSTIN, PAUL MURRAY, PROF 392-4680
BA (TORONTO), M A (CORN), PHD (TORONTO)
ASSISTANT PROFESSOR RUSSIAN
RUSSIAN DEPT, 3684 MCTAVISH ST
7317 DE CHAMBOIS, MONTREAL QUE 738-5136

AVERY, MARY ELLEN, DR 937-8511
AB (WHEATON COLLEGE MAS), MD (JOHNS HOPKINS)
PROFESSOR DEPT OF PEDIATRICS
DEPARTMENT CHAIRMAN DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER,
MONTREAL 108 QUE
3545 REDPATH ST, MONTREAL QUE

AXELRAD, DAVID R, PROF 392-5467
DIP ING (TECH U VIENNA), M ENG (SYDNEY),
D ENG SC (TECH U VIENNA)
P ENG, A M I MECH ENG
THOMAS WORKMAN PROF
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
239 KENSINGTON AVE, APT 905 WESTMOUNT QUE
935-4532

AXELSEN, FRITZ JAROLIM, MR
B SC (MCGILL), M SC (MCGILL)
MARINE SC CENTRE, 772 SHERBROOKE ST W
4870 COTE DES NEIGES, APT 608, MONTREAL 247 QUE

AZIM, HASSAN ABDUL, DR
B A (CAIRO), M B (CAIRO), M B B CH (CAIRO)
CPSPQ
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, A M I
246 BERLIOZ, NUN S ISLAND, MONTREAL 201 QUE
767-3819

AZIMA, FERN, PROF 392-5019
B A (QUEENS), M A (CORN), PH D (MONTREAL)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, 505 PINE AVENUE WEST
70 SUMMIT CIRCLE, MONTREAL QUE 482-4314

BACHMAN, GORDON, DR 453-6580
B SC (NEBRASKA), M SC (WISCONSIN),
PH D (MICHIGAN STATE)
DIRECTOR OF EXTENSION DEPT OF MACDONALD COLL
ASSISTANT PROFESSOR
CTR FOR CONTINUING EDUCATION
FACULTY OF AGRICULTURE, MACDONALD COLLEGE 800
24 ST GEORGE, APT 312, STE ANNE DE BELLEVUE

BAILEY, WALTER, MR 392-4383
C D
CONSTRUCTION CO ORDINATOR
PHYSICAL PLANT, 840 MCGREGOR
421 CARDINAL ST, CHATEAUGUAY QUE 691-0620

BAILLIE, ROBERT A, MR 392-4923
VISITING LECTURER FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA ANATOMY BLDG
3545 COTE DES NEIGES RD, SUITE 90, MONTREAL QUE

BAIN, MORTON J, PROF 392-8816
BA (MOUNT ALLISON), MED (VERMONT)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
3520 AYLMER APT 3, MONTREAL 130 QUE

BAIRSTOW, FRANCES, PROF 392-3077
B SC (WISCONSIN)
DIRECTOR INDUSTRIAL RELATIONS CENTRE
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
INDUSTRIAL RELATIONS, 762 SHERBROOKE ST. W.
593 LAKESHORE RD, BEACONSFIELD QUE

BAKER, BRUCE EARL, PROF 453-6580
BSC (BISHOPS), DSC (LAVAL)
PROFESSOR DEPARTMENT OF AGRIC CHEMISTRY
AGRIC CHEMISTRY, MACDONALD COLLEGE 800, QUE
P O BOX 208, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE PQ 453-4407

BAKER, CHARLES R, MR 392-4947
YMCA IN MCGILL, 3625 AYLMER, MONTREAL 130 QUE
3625 AYLMER, MONTREAL 130 QUE

BAKER, JOSEPH, PROF 392-5423
B A (MANC)
ASSISTANT PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNELL ENG BLDG
1087 GREENE AVE, WESTMOUNT QUE

BAKER, MARGARET ANN, MRS 453-6580
COMPUTING CENTRE, MACDONALD COLLEGE,
ST ANNE DE BELLEVUE QUE
490 ST LAWRENCE, BEACONSFIELD QUE 697-2172

BAKER, ROBERT DALE, PROF 453-6580
B SC (S ILLINOIS), PH D (ILLINOIS)
ASSOCIATE PROFESSOR
DEPARTMENT OF ANIMAL SCIENCE
ANIMAL SCIENCE, MACDONALD COLLEGE 800, QUE
28 PERRAULT, STE ANNE DE BELLEVUE QUE 453-5497

BAKHSHI, SHAHRIAR, MR
MENS RESIDENCES ADMINIST, MOLSON HALL
MOLSON HALL, 3905 UNIVERSITY ST, MONTREAL QUE

BALENA, ANGELA, MISS 392-4940
CATALOGUING, MCLENNAN LIB
3547 UNIVERSITY ST, MONTREAL QUE

BALK, ROGER A, REV 392-4947
A B (HARVARD)
STUDENT CHRISTIAN MVMNT, 3625 AYLMER,
MONTREAL 130 QUE
48 UNION BLVD, ST LAMBERT QUE

BALLANTYNE, ERNEST H, MR 453-7370
BSC (EDINBURGH), DIC (IMPERIAL COLLEGE)
METEOROLOGY, ROOM 203, MACDONALD PHYSICS BLDG
96 CEDAR AVE, POINTE CLAIRE QUE 695-9468

BALLEM, C M, DR
MDCM (DALHOUSIE), M SC (DALHOUSIE)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
1374 SHERBROOKE ST W, MONTREAL QUE

BAMBA, NOBUYA, PROF 392-5188
B A (DOSHISHA), M A (CHICAGO),
PH D (U OF CALIF)
ASSOCIATE PROFESSOR HISTORY
HISTORY DEPT, STEPHEN LEACOCK BLDG
2417 MARIETTE, MONTREAL QUE

BAMBERGER, DAINTRY LEE, MISS
CATALOGUING, MCLENNAN LIBRARY
4520 GRAND BLVD APT 3, N D G, MONTREAL QUE

BAN, THOMAS, DR 181-626
M D (BUD), DIP PSYCH (MCG)
Q M A
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
A M I
17 STRATFORD ROAD, HAMPSTEAD,
MONTREAL 254 QUEBEC 489-3971

BANTING, MARGUERITE, MRS 453-6580
FOOD SUPERVISOR GEN DINING ROOM
DINING, MACDONALD COLLEGE
95 SOMERSET RD, BAIE D URFE QUE 453-2956

BAPTISTE, CARLYLE, MR
CIRCULATION, MCLENNAN LIBRARY
4660 BARCLAY ST, APT 6, MONTREAL QUE

BARBEAU, ANDRE, DR 842-1481
MD (MONTREAL), FRCP (C) (ROY CLG PHY CANADA)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLIN RES INST
3769 WILSON, MONTREAL QUE 488-8952

BARCLAY, W A, MR 392-5339
B SC (MCGILL)
PURCHASING AGENT PURCHASING DEPARTMENT
ADMINISTRATION BLDG
137 MADSEN AVE, BEAUREPAIRE QUE 695-9823

BARIL, ODETTE, MRS 392-8861
FACULTY OF EDUCATION, 3700 MCTAVISH ST
5320 DUDEMAINE APT 5, MONTREAL 390 QUE

BARKER, CHARLES S, DR 842-1251
BA (MCGILL), MDCM (MCGILL)
F R C P, E A C P
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, ROYAL VICTORIA HOSP
9 NELSON AVE, MONTREAL 263 QUE 482-2413

BARR, MICHAEL, PROF 392-4512
AB (PENNSYLVANIA), PHD (PENNSYLVANIA)
PROFESSOR PHYSICS
DEPT OF MATHEMATICS, BURNSIDE HALL
146 DOBIE AVE, TOWN OF MOUNT ROYAL QUE 731-0405

BARRET, GISELEA, DR
CTA72
CELG (ALGET), C A P E S (PARIS),
D E S (SORBONNE), DOCTORAT (PARIS)
DOC ES LETTRES
ASSISTANT PROFESSOR FRENCH
PETERSON HALL
4874 COTE DES NEIGES, APT 1103, MONTREAL QUE 342-2263

BARRY, CATHERINE, MRS 392-5314
PAYROLL DEPT, ADMIN BLDG
4618 HARVARD AVE, MONTREAL 260 QUE 489-0250

BARTHAKUR, NAYANA N, PROF 453-6580
B SC (COTTON COLLEGE), M SC (ALLD),
PH D (SASKATCHEWAN)
ASSOCIATE PROFESSOR DEPARTMENT OF AGRIC PHYSICS
AGRICULTURAL PHYSICS, MACDONALD COLLEGE 800, QUE
MACDONALD COLLEGE QUE 453-8552

BARTON, THOMAS H, PROF 392-5395
B ENG (SHEFFIELD), PH D (SHEFF),
D ENG (SHEFFIELD)
FIEE, SMIEEE
PROFESSOR DEPT OF ELECTRICAL ENG
ASSOCIATE DEAN FACULTY OF ENGINEERING
FACULTY OF ENGINEERING, MACDONALD ENGR BLDG
263 OAKDALE CRESCENT, BEACONSFIELD QUE 697-0172

BARTOVA, ALICA, DR 181-1619
RER NAT DR (BRATISLAVA),
CAN OF SCI (ACAD OF SCI PRAGUE)
PROFESSIONAL ASSIST DEPARTMENT OF PSYCHIATRY
LECTURER DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, A M I
3620 LORNE CRESCENT, APT 505, MONTREAL QUE

BARZA, SIDNEY, DR
BSC (MCGILL), DIP PSYTY (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, 3445 COTE DES NEIGES RD,
MONTREAL 109 QUE
5634 WOLSELEY AVE, MONTREAL 268 QUE 935-8415

BASTOMSKY, CHARLES H, DR 181-1780
MB BCH (WITWATERSRAND), MRCP (UK)
MRCPE
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC RM 18, 4 MAIN,
ROYAL VICTORIA HOSPITAL
1 COTE STE CATHERINE RD, APT 1501 MONTREAL 152 274-0753

BATES, DONALD G, DR 392-4330
M D (WESTERN ONTARIO)
QCPS
DEPARTMENT CHAIRMAN DEPT OF HISTORY OF MEDICINE
ASSOCIATE PROFESSOR DEPT OF HISTORY OF MEDICINE
ASSOCIATE PROFESSOR DEPT OF EPIDEM & HEALTH
HISTORY OF MEDICINE, MCINTYRE MED SCI CTR
559 LANSDOWNE AVENUE, WESTMOUNT 217 QUEBEC 488-0259

BATES, JOHN, MR 392-5023
B SC (LONDON), B COM (S G W U)
DIRECTOR MANAGEMENT SYSTEMS
MANAGEMENT SYSTEMS, 6TH FLOOR,
ADMINISTRATION BLDG
279 BROMLEY AVE, ST LAMBERT QUE 672-1579

BATRA, MANBIR S, DR
M B B S (DELHI), DIPL ANAESTHESIA (RCPS ENG),
CERT ANAES (RCPS CAN)
E C F M G, L M C C
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
200 DE GASPE, APT 1012, MONTREAL 201 QUE

BATTY, C DAVID, PROF 392-5945
BA (DURHAM)
A L A G B, F L A G B
PROFESSOR GRAD SCHOOL OF LIBRARY SCIENCE
MCLENNAN LIBRARY
119 D'ALSACE, ST LAMBERT, QUEBEC 671-0772

BAUER, LUDMILA, PROF 392-4680
M A (MONTREAL)
ASSISTANT PROFESSOR RUSSIAN
3487 PEEL ST
7881 CASGRAIN AVE, MONTREAL QUE 279-3067

BAXTER, DONALD W, DR 937-6011
MD CM (QUEENS)
PROFESSOR DEPT OF MEDICINE & CLIN MED
PROFESSOR UNIVERSITY CLINIC M G H
UNIV CLIN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
177 JASPER AVE, MONTREAL 304 PQ 738-5685

BAXTER, HELEN L, MISS 453-6580
NURSES AID HEALTH SERVICE - MACDONALD
HEALTH SERVICE, MACDONALD COLLEGE 800, QUE
APT 3 INFIRMARY, MACDONALD COLLEGE P O QU 453-3382

BAXTER, JAMES, MR 181-540
MDCM (MCGILL)
F R C S C
CHAIRMAN DEPT OF OTOLARYNGOLOGY
PROFESSOR DEPT OF OTOLARYNGOLOGY
DEPT OF OTOLARYNGOLOGY, R V H
74 FERNLEA CRESC, MONTREAL 304 QUE 733-4738

BAXTER, ROBERT G, DR
B SC (MCG), MD CM (MCG)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED,
ROYAL VICTORIA HOSPITAL
4492 SHERBROOKE ST W, MONTREAL QUE

BAXTER, VIOLET F, MRS 392-3017
FACULTY OF DENTISTRY, STRATHCONA DENT BLDG
4500 GRAND BLVD, APT 7, MONTREAL QUE

BAYLEY, CHARLES C, PROF 392-5184
B A (MANC), M A (MANC), PH D (CHIC)
F R A C
PROFESSOR HISTORY
STEPHEN LEACOCK BLDG
3566 UNIVERSITY ST, APT 2 MONTREAL QUE

BAYRAKAL, SADI, DR 489-6871
M D (ISTANBUL), DIP-PSYCHIATRY (MCGILL)
C S P Q, R C P S(C)
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, QUEEN ELIZABETH HOSPITAL
206 COROT PARK, MONTREAL 201 QUE 769-8996

BEACH, EARL F, PROF 392-5234
BA (QUEENS), A M (HARV), PHD (HARVARD)
BRONFMAN PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
508 VICTORIA AVE, WESTMOUNT 6 QUE

BEALS, CHRISTINA, MRS 453-6580
LIBRARY MACDONALD COLL, MACDONALD COLLEGE 800, QUE
86 CIRCLE RD, BEACONSFIELD QUE

BEALY, ELIZABETH, MISS 937-6011
MCG U NAT HLTH WELFARE, BAFFIN ZONE PROJ M G H,
1650 CEDAR AVE MONTREAL
183 FAIRFIELD AVE, GREENFIELD PARK,
MONTREAL QUE 671-8463

BEAN, GLADYS, PROF 392-4548
BA (MCGILL), DIP P E (MCGILL), M A (COLUMBIA)
PHD (U OF MICHIGAN)
PHYSICAL EDUCATION, R V C
3610 MCTAVISH ST, APT 22 MONTREAL 112 QUE

845-7518

BEARD, MICHAEL JON, MR 392-4973
RARE BOOK DEPT, MCLENNAN LIBRARY
6924 SHERBROOKE WEST, MONTREAL 280 QUE 488-9673

BEARDMORE, HARVEY E, DR
BSC (MCGILL), MDCM (MCGILL)
FRCS, FACS, FAAP
ASSOCIATE PROFESSOR MCGILL-M C H SURGERY CLINIC
SURG-MTL CHLD HOSP, 2300 TUPPER,
MONTREAL 108 QUE
3186 THE BOULEVARD, WESTMOUNT QUE

BEATTY, BARBARA E, MISS
B PT (MCGILL)
LECTURER PHYSICAL&OCCUPATIONAL THERAPY
DAVIS HOUSE
4320 SHERBROOKE ST, LACHINE QUEBEC 637-9842

BEATTY, HARRY ALEXANDER, PROF 392-5155
B A (WATERLOO), PH D (STANFORD)
ASSISTANT PROFESSOR PHILOSOPHY
772 SHERBROOKE ST.W.
126 CLANDEBOYE AVE, WESTMOUNT QUE 937-9685

BEAUBIEN, JACQUES, DR
BSC (MCGILL), M D C M (MCG), MD (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH LKSHR GEN HOSP, 160 STILLVIEW,
POINTE CLAIRE QUE
460 LAKESHORE RD, BEAUREPAIRE QUE

BEAUDOIN, JEAN GUY, DR 181-1686
BA (MONTREAL), MD (MONTREAL)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
500 FRANCOIS APT 213, MONTREAL 201 QUE 844-9820

BEAUDRY, PIERRE H, DR 937-8511
BA (MONTREAL), MD (MONTREAL)
S P Q, C S P Q
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
2555 BENNY AVE APT 1415, MONTREAL 261 QUE
481-6303

BEAVIS, MARGARET, MRS 392-5362
PERSONNEL, ADMINISTRATION BLDG
409-7TH AVE, TWO MOUNTAINS QUE 473-3119

BECK, JOHN C, DR 181-342
B SC (MCGILL), MD CM (MCG), M SC (MCG)
M SC (MCGILL)
F A C P, F R C P
DEPARTMENT CHAIRMAN UNIVERSITY CLINIC R V H
PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLINIC, RM 15-4 MAIN R V H
592 KENASTON AVE, TOWN OF MOUNT ROYAL QUE
738-2477

BECK, PHILIP, DR
A B (CORNELL), DIP PSYCH (MCGILL),
MDCM (MCGILL)
Q P A
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, AMI
184 THOMPSON BLVD, APT 2, MONTREAL 380 341-6211

BECKLAKE-MCGREGOR, M R, DR 392-8056
MB B CH (WITWATERSRAND), MD (WITWATERSRAND)
M R C P (LOND)
PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLIN, 3 MED R V H
7430 RUE BAYARD, MONTREAL 301 QUE 733-0893

BEIGHTON, MABEL G, MISS
DIAGNOSTIC RADIOLOGY
4600 PIE IX BLVD, APT 16, MONTREAL 406 QUE

BEIQUE, RENE A, DR
BA (MONTREAL), B SC (MONTR), M SC (MONTR)
PHD (M I T)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
DIAG RAD MTL CHLD HOSP, 2300 TUPPER,
MONTREAL 108 QUE
5055 COTE ST LUC RD, MONTREAL QUE

BELAIR, LORRAINE, MRS 392-5103
FAC OF ARTS & SCI, DAWSON HALL
9332 CENTRAL ST, MONTREAL QUE 365-0390

BELAND, JEAN, DR
MD (LAVAL)
LECTURER DEPT OF PATHOLOGY(TEACH)
3650 ST URBAIN, MONTREAL 130 QUE
2687 CHEMIN ST LOUIS, ST LAZARE, VAUDREUIL QUE

BELANGER, GARRY, DR
B A (OTTAWA), M D (OTTAWA)
LECTURER NEUROLOGY & NEUROSURGERY
M N I
1100 MCGREGOR APT 419, MONTREAL QUE

BELANGER, GINETTE, MISS 392-4501
FACULTY OF MUSIC, STRATHCONA MUSIC BLDG,
555 SHERBROOKE ST WEST
3575 UNIVERSITY APT 414, MONTREAL 112 QUE
845-2600

BELANGER, PIERRE R, PROF 392-5410
B ENG (MCGILL), S M (M I T), E E (M I T)
PH D (MASS INST OF TECHN)
IEEE, CIQ
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
DEPARTMENT CHAIRMAN DEPT OF ELECTRICAL ENG
DEPT OF ELECTRICAL ENG, MCCONNELL ENG BLDG
59 SOMERVILLE, WESTMOUNT QUE 489-1277

BELIARD, CAROL, MRS
B A HONS (LIVERPOOL), PH D (HULL)
SESSIONAL LECTURER FRENCH
FRENCH LANG & LIT, PETERSON HALL
111 DE LA BARRE AVE, APT 412, LONGUEUIL QUE
674-0063

BELL, ROBERT EDWARD, DR 392-5347
BA (U BRITISH COLUMBIA), M A (UBC),
PHD (MCGILL)
PRINCIPAL & VICE CHANCELLOR
RUTHERFORD PROF PHYSICS
ADMINISTRATION, F CYRIL JAMES ADM BLDG
363 OLIVER AVE, MONTREAL 215 P Q 935-3769

BELLAND, JANET, MRS 392-4870
BOOKSTORE, 3480 MCTAVISH
2068 TRENHOLME ST APT 7, MONTREAL 262 QUE
392-4870

BELLEAU, BERNARD R, PROF 392-5926
B SC (U OF MTL), M SC (U OF MTL),
PH D (MCGILL U)
FRSC
PROFESSOR CHEMISTRY
CHEM DEPT, OTTO MAASS CHEM BLDG
473 CLARKE AVE, WESTMOUNT QUE 935-4251

BELLEAU, LAURE, MRS 392-5210
FRENCH CAN STUDIES PROG, 3475 PEEL ST
254 DUBEAU ST, VILLE ST LAURENT QUE

BELLEY, JACQUES, DR
M D (MONTREAL)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
355 BRIXTON, ST LAMBERT PQ 671-8221

BELLIVEAU, NORMAND, DR
LL D/DAL
B A (STE ANNE NOVA SCOTI), B M (LAVAL),
MD (LAVAL)
FACS
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
ROYAL VICTORIA HOSPITAL, 687 PINE AVE MTL 112
1 PLACE VILLE MARIE, MONTREAL QUE

BELLUTEAU, JEANNE, MISS 392-4670
FRENCH LANG & LIT, PETERSON HALL
135 SHERBROOKE ST EAST, APT 809,
MONTREAL 129 QUE

BELMONTE, MIMI M, DR 937-8511
BSC (MCGILL), MDCM (MCGILL)
F R C P (C)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL QUE
418 PINE AVE W, APT 14, MONTREAL QUE 845-0315

BELMONTE, MIMI MADELEINE, DR
BSC (MCGILL), MDCM (MCGILL)

FRCP (C)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
MONTREAL CHLD HOSP, 2300 TUPPER,
MONTREAL 108 QUE
418 PINE AVE W, MONTREAL 130 PQ 937-8511

BELUSE, PIERRE, MR 392-5117
LECTURER FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
123 CLIFTON, ST BRUNO PQ 653-0457

BENFEY, BRUNO GEORG, DR 392-4275
M D (HAMBURG), DIPL CHEM (GOTTINGEN)
ASSOCIATE PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
MCINTYRE MED SC BLDG
116 CHESTNUT DRIVE, BAIE D URFE QUE 453-8510

BENIERAKIS, CONSTANTINE, DR 392-5019
BA (DUBLIN), M A (DUBLIN), DIP PSYCH (MCGILL)
MBBCHBAO (DUBLIN)
L M C C
LECTURER DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, 505 PINE AVE W
3250 FOREST HILL, MONTREAL QUE

BENJAMIN, PETER, DR
BSC (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
174 HARLAND RD, HAMPSTEAD QUE 932-5852

BENNET, BRUCE G, MR 392-5285
B COMM (MCG), DIPMBA (MCG)
CHIEF INTER AUDITOR ADMINISTRATION
INTERNAL AUDIT, F CYRIL JAMES BLDG
294 WINTERS DRIVE, BAIE D URFE QUE 453-2067

BENNETT, GARY COLIN, PROF 392-4906
B A (S G W U), M SC (MCGILL), PLD (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF ANATOMY
STRATHCONA ANAT &DENT BL
135 MAYWOOD AVE, POINTE CLAIRE QUE 697-1285

BENNETT, GORDON J, PROF 392-8831
B ARTS (SGWU), M ED (BOSTON MASS)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
DIRECTOR OF STUDENT TEACHING EDUCATION BLDG
FACULTY OF EDUCATION, 3700 MCTAVISH ST
43 OXFORD RD, BAIE D URFE QUE 453-6297

BENSLEY, EDWAR HORTON, MR 392-4332
MBE
D SC(ACADIA)1964
BA (TORONTO), MD (TORONTO)
FRCP(C), FCIC, FACP
LECTURER DEPT OF HISTORY OF MEDICINE
HISTORY OF MEDICINE, MCINTYRE BLDG
157 MORRISON AVE, TOWN OF MOUNT ROYAL QUE
738-1034

BENTLEY, KENNETH C, DR
DENTISTRY (MCGILL), MEDICINE (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTAL CLINIC M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
5564 QUEEN MARY RD, HAMPSTEAD QUE

BERENSON, JANUSZ, MR 392-4866
PSYCHIATRY DEPT, A M I
4620 ST KEVIN ST, APT 10 MONTREAL QUE 739-8689

BERGMANN, ROSEMARIE, PROF 392-4976
BA (VIENNA), MA (MUNICH), BLS (MCGILL)
PHD (MARBURG)
ASSISTANT PROFESSOR ART HISTORY
4915 DE MAISONNEUVE BLVD, MONTREAL QUE, K1S-3G9
233-4150

BERKES, NIYAZI, PROF 392-5198
LIC EN LET (ISTANBUL UNIV),
LIC EN LET (ISTANBUL U)
PROFESSOR INSTITUTE OF ISLAMIC STUDIES
INSTITUTE OF ISLAMIC STU, LEACOCK BUILDING
3 PINES HORNASH LANE, SHADOXHURST ASHFORD,
KENT ENGLAND

BERLINSKI, RACHEL, MISS 392-8057
B SC (MCG), B SC (MCGILL)
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
144 FINCHLEY RD, MONTREAL 254 QUE 489-7519

BERRY, GERALD R, DR
BSC (ST FRANCIS XAVIER), B A (ST F X),
MD (DALHOUSIE)
ASSISTANT PROFESSOR
PHYSICAL&OCCUPATIONAL THERAPY
3775 UNIVERSITY ST
269 CEDAR AVE, ROSEMERE QUE 695-1310

BERTHAULT, FAITH, PROF 392-8862
BA (HNRS) (LONDON)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
102 BEDFORD ROAD, BAIE D URFE 850 PQ 453-7821

BERTOS, RIGAS N, PROF 392-4976
B A (ATHENS), M A (ATHENS), PH D (MUNICH)
ASSOCIATE PROFESSOR ART HISTORY
ARTS BLDG
5152 BOURRET AVE, MONTREAL 252 QUE 738-4502

BERTRAND, GILLES, DR 181-295
QC
BA (U DE MONTREAL), M D (MONTR), MSC (MCGILL)
CSPQ
PROFESSOR NEUROLOGY & NEUROSURGERY
PROFESSOR FACULTY OF MEDICINE
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
385 LETHBRIDGE, TOWN OF MT ROYAL QUE 733-9644

BERTRAND, HELENE, MISS 392-4956
MA (MONTREAL), B L S (MCGILL)
LIBRARIAN MCLENNAN LIBRARY -SELECTION
SERIALS, REDPATH LIBRARY
3445 DRUMMOND ST, APT 106, MONTREAL 109 QUE
288-7318

BESEL, LORINE, PROF
B N (MCGILL), M S (BOSTON)
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
SCHOOL OF NURSING, WILSON HALL,
3506 UNIVERSITY ST
2300 ST MATHIEU, APT 501, MONTREAL 108 QUE

BESLIN, RALPH, MR 392-5380
BA HISTORY (LOUISIANA STATE UNIV)
MCLENNAN LIBRARY - AQUIS, MCLENNAN LIBRARY
3597 JEANNE MANCE APT 5, MONTREAL 130 QUE
843-5572

BEWS, MARY E, PROF 392-8845
BA (QUEENS)
A T E Q
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
41 TUNSTALL AVE, SENNEVILLE QUE 453-4411

BHAGA, KANTILAL, MR 392-5066
LAW LIBRARY, NEW CHANCELLOR DAY HALL
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BHARUCHA, ADI DARABSHAW, DR
DEMONSTRATOR SENIOR DEPARTMENT OF BIOCHEMISTRY
258 PERRAS ST, APT 405, GREENFIELD PARK QUE

BIBERFELD, FANNY, MISS 392-3077
INDUSTRIAL RELATIONS, 762 SHERBROOKE ST. W.
660 MCEACHRAN, OUTREMONT QUE

BIBLE, BERNARD B, PROF 453-6580
B S (OHIO ST U), M S (MICH ST U),
PH D (MICH ST U)
ASSISTANT PROFESSOR DEPT OF HORTICULTURE
MACDONALD COLLEGE 800, QUE
P O BOX 51, MACDONALD COLLEGE QUE 453-3925

BIDER, J ROGER, PROF 453-6580
BSC (UNIV DE MONTREAL), M SC (MONTR),
PHD (UNIV DE MONTREAL)
ASSOCIATE PROFESSOR WOODLOT MANAGEMENT
MACDONALD COLLEGE 800, QUE
1 STEWART PARK, MACDONALD COLLEGE QUE 453-3875

BIERNASKI, M LOUISE, MRS 392-4715
B COMM (OTTAWA)
BUDGET OFFICER DIRECTOR'S OFFICE,LIBRARIES
ADMINISTRATION, MCLENNAN LIBRARY
25 APPLEGROVE ST, DOLLARD DES ORMEAUX QUE

684-0515

BIGGS, SUSAN, MISS 392-4332
B A (BISHOP S U)
HISTORY OF MED, MCINTYRE MED BLDG
1430 MCGREGOR PLACE, MONTREAL 109 QUE 842-4049

BIGMAN, SHEINA, MISS 392-4740
B A (BOSTON)
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
3464 HUTCHISON ST, APT 510, MONTREAL QUE

BIKADOROFF, SERGE, DR
B SC (MCG), M D C M (MCG)
L M C C, CERT PSYCHIAT, DIPL PSYCHIAT
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, MONTREAL GEN HOSP
5287 BESSBUROUGH AVE, MONTREAL QUE

BINDRA, DALBIR, PROF 392-4697
BA (PUNJAB), M A (HARV), PHD (HARVARD)
PROFESSOR PSYCHOLOGY
STEWART BLDG
3698 ONTARIO AVE, APT 4 MONTREAL 109 QUE
842-4013

BIRCH, L BERNARD, PROF 392-8842
BSC (BIRMINGHAM), MA (BIRMINGHAM)
MACDONALD PROF FACULTY OF EDUCATION
DIRECTOR OF GRADUATE STUDIES EDUCATION BLDG
CHAIRMAN EDUCATIONAL RESEARCH DEPT
FACULTY OF EDUCATION, 3700 MCTAVISH ST
19 CAMBRIDGE RD, BAIE D URFE QUE 453-7303

BIRCHER, MARTIN, PROF 392-5741
PHD (ZURICH SWITZERLAND),
PHD (ZURICH SWITZERLAND)
ASSOCIATE PROFESSOR GERMAN
GERMAN DEPT, 3666 MCTAVISH ST
C/O 3666 MCTAVISH ST, MONTREAL 110 QUE

BIRD, JOHN BRIAN, PROF 392-5489
BA (CAMBRIDGE), MA (CAMBRIDGE)
PROFESSOR GEOGRAPHY
DEPARTMENT CHAIRMAN GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
27 LOMBARDIE ST, ST LAMBERT PQ 672-4834

BIRKS, RICHARD I, PROF 392-3083
B A (MCGILL), M SC (MCG)
PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SC BLDG
329 GROSVENOR AVE, MONTREAL QUE 933-6822

BIRMINGHAM, L W, DR
B A (U N B), M SC (ROCHESTER), MD CM (MCG)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
526 LAKESHORE RD, BEACONSFIELD QUE

BIRMINGHAM, MARION K, PROF 181-1614
BA (BENNINGTON COLLEGE), M SC (MCG),
PHD (MCGILL)
PROFESSOR DEPARTMENT OF PSYCHIATRY
RESEARCH ASSOCIATE DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, A M I
526 LAKESHORE RD, BEACONSFIELD QUE 181-1614

BIRNIE, JOAN, MRS 392-5781
B A (TORONTO)
DEMONSTRATOR CHEMISTRY
OTTO MAASS CHEM BLDG
4857 CORONATION AVE, MONTREAL 265 QUE 489-7787

BISCHOFF, WALTER, MR 392-5463
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
643 CHARLESBOURG, STE THERESE W QUE 435-3279

BISHOP, DAVID, MR 392-3059
B A (DALHOUSIE), M S (COLUMBIA)
MEDICAL LIBRN MEDICAL LIBRARY
MCINTYRE MEDICAL BLDG
4400 HAMPTON, MONTREAL 261 QUE 931-4327

BISHOP, DIANA, DR
LECTURER DEPT OF PATHOLOGY(TEACH)
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST
4400 HAMPTON AVE, N D G, MONTREAL QUE

BISHOP, LOUISE, MRS
BIOLOGY, MACDONALD COLLEGE
68-6E AVE APT 1, ILE PERROT QUE 453-7491

BITENC, IGOR A S, MR
FRCSC
MD (VIENNA), MD (VIENNA)
F R C S, L M C C
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, ROYAL VICTORIA HOSPITAL,
687 PINE AVE MTL 112
1 WESTMOUNT SQUARE, SUITE 433, MONTREAL 216 QUE

BITTAR, JACQUELINE MARIE, MRS 392-5067
LAW LIBRARY, NEW CHANCELLOR DAY HALL,
3644 PEEL STREET
4852 WESTMORE AVE, MONTREAL 265 QUE 488-1822

BLACK, MARIA T A, MRS 392-4600
SPANISH LANG AND LIT, 3491 PEEL ST
3859 WILSON AVE, MONTREAL 28 QUE 484-5768

BLACKWOOD, A CLARK, PROF 453-6580
BSC (AGR) (ALBERTA), M SC (ALTA),
PHD (WISCONSIN)
PROFESSOR DEPT OF MICROBIOLOGY
VICE PRINCIPAL FACULTY OF AGRICULTURE
FACULTY OF AGRICULTURE, MACDONALD COLLEGE
WINDCREST AVE, BOX 563, HUDSON QUE 236-5967

BLAHEY, PETER R, DR
B A (SASKATCHEWAN), M D (TORONTO)
FRCS(C), FRCOG, FACOG
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS & GYN MTL GEN HOSP, 1650 CEDAR AVE
MONTREAL GEN HOSP, 1650 CEDAR AVE, MONTREAL QUE

BLAIS, J ESTHER, MR 453-6580
MICROBIOLOGY, MACDONALD COLLEGE
160 RUE GAGNE APT 2, DORION QUE 234-9549

BLAISE, BHARATI, PROF 392-4995
B A (CALCUTTA), MA (BDA), MFA (IOWA)
PH D (IOWA)
ASSISTANT PROFESSOR ENGLISH
ARTS BLDG
533 VICTORIA, WESTMOUNT QUE 933-7138

BLAND, JOHN, PROF 392-5402
B ARCH (MCGILL), AA DIP HON (ARCH ASSN SCHOOL)
AMTPI(LOND), FRAIC, ARIBA, RCA
MACDONALD PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE, 3484 UNIVERSITY ST
21094 LAKESHORE RD, STE ANNE DE BELLEVUE QUE
453-4383

BLAZINA, ZLATA TOMIC, MRS 392-4331
BA (ZAGREB)
OSLER LIBRARY, MCINTYRE MED SCI CENTRE
1025 SHERBROOKE EAST, APT 1003,
MONTREAL 132 QUE 523-3396

BLIDSTEIN, GERALD J, PROF
B A (YESHIVA), M A (COLUMBIA), PH D (YESHIVA)
ASSOCIATE PROFESSOR JEWISH STUDIES PROGRAM
3511 PEEL ST
AYACAH 30, BEERSHEBA, ISRAEL

BLOCK, VICTOR RICHARD, PROF 392-5741
BA (MCGILL), MA (MCG), PHD (CORNELL)
ASSOCIATE PROFESSOR GERMAN
3666 MCTAVISH ST
45 THORNHILL AVE, MONTREAL 217 QUE 937-3429

BLONOWSKI, WOLFGANG, MR 392-5730
GEOLOGICAL SCIENCES, F.D. ADAMS BLDG
3623 ST LAWRENCE BLVD, MONTREAL QUE 845-2643

BLOOM, HAROLD, MR 392-4819
ACCOUNTANT GRADUATE SOC OF MCGILL
3618 UNIVERSITY ST
5201 WESTMORE AVE, MONTREAL QUE 484-6635

BLOSTEIN, MAIER L, PROF 392-5413
B ENG (MCGILL), M ENG (MCGILL),
PHD (UNIV OF ILLINOIS)
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
4361 MONTROSE AVE, MONTREAL 217 QUE 931-2871

BLOSTEIN, RHODA, DR 181-769
B SC (MCG), M SC (MCG), PH D (MCG)

ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC, ROYAL VICTORIA HOSP
4361 MONTROSE, MONTREAL 218 QUE

BLUMBERGER, IMRE, MR 392-4925
DENTISTRY DEPT, STRATHCONA MED BLDG
4137 BRAILLE AVE, MONTREAL QUE 731-1823

BLUME, HELMUT, DEAN 392-4501
DIP MUSIC (STATE ACADEMY MUSIC)
DEAN FACULTY OF MUSIC
CHAIRMAN DEPT OF APPLIED MUSIC 3605 MOUNTAIN
FACULTY OF MUSIC, MONTREAL CHILDRENS HOSP,
2300 TUPPER ST
20 WINDSOR AVE, WESTMOUNT QUE

BLUNDELL, JOHN, DR 937-8511
B A (CAMBRIDGE), M B (CAMBRIDGE),
M A (CAMBRIDGE), M D (CAMBRIDGE)
M R C P
ASSOCIATE PROFESSOR MCGILL-M C H SURGERY CLINIC
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
DEPARTMENT OF SURGERY, 2300 TUPPER ST,
MONTREAL 108 QUE
4340 MONTROSE AVE, MONTREAL 217 QUE

BLUNDELL, PETER E, DR 935-2228
F R C S (C), C S P Q, F A C C P
M D (OF TORONTO)
ASSOCIATE SURG., ASSISTANT PROF.
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
1650 CEDAR AVE
786 UPPER BELMONT AVE, WESTMOUNT QUE 489-9896

BOCKUS, ELTON C, PROF 392-8870
BA (BISHOPS), MA (MCGILL)
CAPE, ATEQ
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
RR1, HUDSON QUE 236-4497

BOECKH, ANTHONY J, MR
SESSIONAL LECTURER FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
STOREY BOECKH & CO, 1245 SHERBROOKE ST W,
STE 280 MONTREAL QUE

BOESCHENSTEIN, HERMANN, PROF 392-5094
LL D QUEEN S, FR SC
PHD (ROSTOCK), PH D (U OF ROSTOCK)
VISITING PROFESSOR GERMAN
3666 MCTAVISH ST
103 BEDFORD RD, TORONTO 5 ONT

BOGDANOVIC, EMILIJA, MRS 392-8057
DEPT OF EPIDEM & HEALTH, NEW PATHOLOGY BLDG
3474 HUTCHISON ST, APT 1103, MONTREAL QUE

BOLANDE, ROBERT P, DR 937-8511
B S (NORTHWESTERN), M S (NORTHWESTERN),
M D (NORTHWESTERN)
PROFESSOR PATHOLOGY SERVICE
PROFESSOR DEPT OF PATHOLOGY(TEACH)
DEPT OF PATHOLOGY(TEACH),
MONTREAL CHILDRENS HOSP,
23 BARAT RD, WESTMOUNT QUE

BOLL, W G, PROF 392-4650
BSC (MANCHESTER), DOCTORATE (MANCHESTER)
PROFESSOR BIOLOGY
STEWART BLDG
34 8TH STREET, ROXBORO QUE 684-4789

BOOKER, ELIZABETH ANN, MRS 453-6580
ANIMAL SCIENCE, MACDONALD COLLEGE 800, QUEBEC
32 LAKEVIEW RD, BAIE D URFE QUE 453-4944

BOOKER, GEORGE, PROF 392-8850
ASSOCIATE OF ARTS (LAMAR),
B S (NORTHWESTERN STATE),
M M (LOUISIANA STATE), PH D (FLORIDA STATE)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
1115 SHERBROOKE ST W, APT 508, MONTREAL QUEBEC

BOORMAN, JOHN ARTHUR, PROF 392-4834
BA (ALBERTA), M A (COL),
PH D (COLUMBIA NEW YORK)
ASSOCIATE PROFESSOR FAC OF RELIGIOUS STUDIES
3520 UNIVERSITY ST
526 CHURCH ST, BEACONSFIELD 870 QUE 697-4592

BOOTH, ELIZABETH M., MRS 453-6580
AGRICULTURAL ENGINEERING, MACDONALD COLLEGE 800
QUE
22 MAPLE AVE APT 24, STE ANNE DE BELLEVUE QUE
453-4386

BOOTH, WILLIAM T, MR 392-4988
BA (MCGILL)
ASSISTANT CHAIRMAN ENGLISH
LECTURER ENGLISH
ENGLISH, ARTS BUILDING
3851 OXFORD AVE, NOTRE DAME DE GRACE QUE
487-3961

BOOTHROYD, E ROGER, PROF 392-4585
B SC (BISHOPS), M SC (MCG), PH D (MCGILL)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
5522 BORDEN AVE, COTE ST LUC QUE 488-6837

BORBA, NEY A, MR 392-8290
BSC (MCGILL), MSC (MCGILL)
RESEARCH ASSISTANT MATHEMATICS
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
3 PLACE BELLERIVE, APT 1513, LAVAL QUE

BORGHI, GERALD, MR 392-8293
BSCSPECIAL (LONDON)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4041 SOURCES RD APT 204, DOLLARD DES ORMEAUX QU

BORGMANN, MARTHA, MISS 392-8886
BA (MCGILL), MSC (MCGILL)
SESSIONAL LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
3695 JEANNE MANCE ST, MONTREAL 130 QUE 842-6394

BORIGHT, ROBERT, DR
B SC (MCGILL), M D C M (MCGILL)
LECTURER DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, MONTREAL GENERAL HOSP
596 COTE ST ANTOINE RD, WESTMOUNT QUE 486-5980

BORIND, MARY, MRS 392-5446
NURSE HEALTH SERVICE - MCGILL
HEALTH SERVICE, 517 PINE AVE W
418 PINE AVE W, APT 30 MONTREAL QUE 845-4729

BORISSOV, IGOR A, MR 392-5389
DEPT OF ELECTRICAL ENG, MCCONNELL ENG BLDG
6 LAKEVIEW RD, BAIE D URFE QUE 453-4627

BORLAND, DONALD, MR 392-5460
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
103 ILE PERROT BLVD, ILE PERROT QUE 453-5318

BORNSTEIN, JACOB, MR 392-8893
BA (MCGILL)
PHYSICAL EDUC LIB, 3700 MCTAVISH ST
4349 GUIMONT AVE, LAVAL QUE 392-8893

BOS, CARLO GIOVANNI, DR
BA (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, AMI
3605 MARLOWE AVE, MONTREAL QUE

BOSKI, MARINA M, MRS 181-573
BA (S G W U), BLS (MCGILL)
M.N.H. STAFF NEUROLOGY & NEUROSURGERY
M.N.H. STAFF MEDICAL LIBRARY
MEDICAL LIBRARY, M N I
4132 MELROSE AVE, MONTREAL 261 QUE 482-2575

BOSSE, HEINRICH, DR 392-5094
DOCTORATE (WEST BERLIN)
LECTURER GERMAN
GERMAN DEPT, 3666 MCTAVISH ST
3775 HARVARD AVE, MONTREAL 260 QUE

BOSTON, FRANCES M, MR
B A (CANTAB), D M R D (ROY COLL PHYS SURG)
FRCPS
LECTURER DIAGNOSTIC RADIOLOGY
1650 CEDAR AVE, MONTREAL 109 QUE
C/O MONTREAL GENERAL HOS, 1650 CEDAR AVE,
MONTREAL QUE

BOSZORMENYI, IRENE, MRS 453-6580
LIBRARY MACDONALD COLL, MACDONALD COLLEGE 800, QUE
40A PERRAULT ST, STE ANNE DE BELLEVUE QUE 453-4187

BOTH, GABOR, MR 392-5065
B L S (MCGILL)
CBPQ
LIBRARIAN LAW LIBRARY
NEW CHANCELLOR DAY HALL
418 PINE AVE W, APT 28, MONTREAL 130 QUE

BOTH, STEPHANIE, MRS 392-5931
B A (S G W U), B L S (TORONTO), M L S (MCG)
LIBRARIAN SCHOOL OF LIBRARY SC
MCLENNAN LIBRARY
418 PINE AVE W, APT 28 MONTREAL QUE 288-1893

BOUCHARD, DONALD F, PROF 392-4993
BA (UNIVERSITY OF N H), M A (ST UNIV OF N Y),
PHD (SUNYAB)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
123 7 VANGUARD AVE, POINTE CLAIRE QUE

BOUCHER, JEAN PIERRE, PROF
B A (MONTREAL), M A (MCGILL),
DOCTORAT (BESANCON)
ASSISTANT PROF FRENCH
PETERSON HALL
10429 RUE MEILLEUR, MONTREAL 357 QUE 381-7586

BOUCHER, ROGER, DR
B SC (MONTR), M SC (MONTR), PH D (MONTR)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
C/O EXPMTL MED, CLINICAL RESCH INST,
110 PINE AVE W MTL QUE 842-1481

BOUDREAU, CAROL J, DR 392-5420
M D (OTTAWA)
FOPQ, CPSQ
HEALTH SERVICE-MCGILL, 517 PINE AVE W
165 DE BOURGOGNE, ST LAMBERT PQ

BOULIANNE, REAL, DR
B A (SGWU), PH D (MCGILL), M A (U OF OTTAWA)
DIRECTOR OF COLLEGE LEVEL PROGRAMS
3700 MCTAVISH ST
340 DESAULNIERS BLVD, ST LAMBERT QUE 671-9154

BOULLE, PIERRE H, PROF 392-4304
B A (INDIANA UNIVERSITY), M A (STAN),
PH D (UNIV CALIF BERKELEY)
ASSOCIATE PROFESSOR HISTORY
STEPHEN LEACOCK BLDG
80 CHESTERFIELD AVE, MONTREAL 217 QUE 488-0422

BOURKE R, DAVID, MR 392-5017
B ARCH (MCGILL), M ARCH (HARVARD)
M R A I C, A R C A
EXECUTIVE ASSISTANT ADMINISTRATION
ADMINISTRATION, ADMINISTRATION BLDG
4675 ROSLYN AVE, MONTREAL 247 P Q 489-4611

BOURNE, FREDERICK MUNROE, DR
B A (MCGILL), B A (MCG), M D C M (MCG)
MD CM (MCGILL)
FRCP(C), C C P S Q, F A C P
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
604 VICTORIA AVE, MONTREAL 217 QUE

BOURNE, HILARY B, DR
MD CM (MCGILL)
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTET & GYNAECOL, R V H
3550 COTE DES NEIGES RD, SUITE 608,
MONTREAL QUE

BOUVIER, CAROL ANN, MRS 392-4421
UNIVERSITY PRESS, 3458 REDPATH ST
356 WOODLAND AVE, APT 1 MONTREAL 204 QUE 761-4363

BOYARSKY, ABRAHAM, DR 392-8281
B ENG HON (MCGILL), MASTER S (MCGILL),
PH D (MCGILL)
LECTURER MATHEMATICS
VISITING LECTURER DEPT OF ELECTRICAL ENG
DEPT OF ELECTRICAL ENG, MCCONNELL ENGINEERING
3940 CARLTON AVE, MONTREAL 249 QUE 733-2727

BOYD, MARK E, DR
HEALTH SERVICE-MCGILL, 517 PINE AVE WEST
5025 SHERBROOKE ST W, MONTREAL QUE 489-9713

BOYD, NORMAN F, DR
M B B S (LONDON)
M R C S, L R C P, F R C P(C)
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
QUEEN MARY VETS HOSP, 4565 QUEEN MARY RD
C/O QUEEN MARY VET HOSP, 4565 QUEEN MARY RD,
MONTREAL 247 QUE

BOYD, ROSALIND, MISS 392-5327
B A (U VICT B C)
CTR FOR DEVELOPING, AREA STUDIES, 3437 PEEL ST
3437 PEEL ST, MONTREAL QUE

BOYLES, W H, DR
DDS (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND ST, MONTREAL 107 QUE
1414DRUMMOND ST, MONTREAL QUE

BRADLEY, CLEVELAND W, MR 392-5399
B ENG (MCGILL), M ENG (MCGILL)
C E Q
LECTURER DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
3550 RIDGEWOOD AVE, APT 26 MONTREAL 247 PQ 735-2834

BRADLEY, ELDON L, MR 453-6580
BLDGS GRDS MTCE (MAC), MACDONALD COLLEGE
3 EAST COTTAGES, BOX 35, MACDONALD COLLEGE QUE 453-7254

BRADLEY, JON G, MR 392-8817
B A(HIST) (SGWU), DIP IN EDUCATION (MCGILL),
M A(HIST) (SGWU)
SESSIONAL LECTURER FACULTY OF EDUCATION
SOCIAL SCIENCES, 3700 MCTAVISH ST
2071 DECARIE BLVD, MONTREAL 260 PQ 481-1830

BRADLEY, MARTIN ANTHONY, PROF 392-5268
ASSOCIATE PROFESSOR FACULTY OF LAW
INST AIR & SPACE LAW, CHANCELLOR DAY HALL
123 14TH ST, ROXBORO QUE 684-0484

BRADY, KATHLEEN F, MISS 392-5029
BACH NURS (MCGILL), MA NURSING (COLUMBIA)
LECTURER SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
5755 SIR WALTER SCOTT, APT 301,
MONTREAL 269 QUE

BRAMMER, WIVINE, MRS 392-5082
DEANS SECRETARIAT, DAWSON HALL
55 18TH AVE, TWO MOUNTAINS QUE 473-3659

BRAY, FRANK LAWRENCE, MR 392-5793
CUSTODIAN OF PLANS
PHYSICAL PLANT, 840 MCGREGOR
3484 STANLEY ST, APT 311 MONTREAL QUE 844-6298

BRAY, GARTH M, DR
BSC (MANITOBA), MD (MANITOBA)
F R C P C
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
UNIV CLINIC M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
113 HARWOOD GATE, BEACONSFIELD 880 QUE

BRAY, ROBERT T, MR 392-4225
BUSINESS MANAGER
RESIDENCES & DINING HALLS
BISHOP MOUNTAIN HALL, 3935 UNIVERSITY ST
7165 DESLIERRES STEET, ST LEONARD 514 PQ 254-4240

BRAYNE, NELLIE C, MISS 453-6580
LIBRARY MACDONALD COLL, MACDONALD COLLEGE 800, QUE
21 PERRAULT AVENUE, STE ANNE DE BELLEVUE,

800 PQ 453-5702

BRAZEAU, MICHEL, PROF
B A (LOYOLA COLLEGE), M D (U OF MTL)
ASSISTANT PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIO & IMMUNO, PATHOLOGY INSTITUTE
4643 SHERBROOKE W, APT 6, MONTREAL 215 PQ

BREITSPRECHER, SIEGFRIED, DR
STAATSEX (TUBINGEN), HABILITATION (GIESSEN),
D T (GERMANY)
UNIVERSITATS-DOZ
VISITING ASSOC PROF MATHEMATICS
BURNSIDE HALL
3440 DUROCHER ST, MONTREAL QUE

BRENNAN, G MICHAEL, MR 392-5721
B SC A (MACDONALD)
MARINE SCIENCES CENTRE, 772 SHERBROOKE ST W
50 PLACE COTE VERTU, APT 320,
MONTREAL 380 QUEBEC 332-4018

BRETTLER, ELIAS, MR 392-8296
BA (HAVERFORD), PHD (MCGILL)
SESSIONAL LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
3460 SIMPSON ST, MONTREAL QUE 937-6516

BRIANT, PETER C, PROF 392-5800
B COM (MCG), M BA (MCG), PH D (MICH)
C A
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
1975 FLEMING RD, TOWN OF MT ROYAL QUE

BRICKMAN, HELEN, PROF
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
MTL CHILDRENS HOSP, 2300 TUPPER,
MONTREAL 108 QUE
5031 PONSARD AVE, MONTREAL QUE

BRIERLEY, JOHN E C, PROF 392-5250
BA (BISHOPS U), BCL (MCG), PHD (PARIS)
QUE BAR ASSOC ME
ASSOCIATE PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
41 CHESTERFIELD AVE, WESTMOUNT 217 QUE

BRISEBOIS, MARIE ROY, MRS 392-5040
B A (MONTREAL), M A SERVICE (MONTREAL)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY
2135 GUERTIN, ST LAURENT, MONTREAL 381 334-4993

BRISODHAN, BHANMATTIE, MRS 392-5113
CATALOGUING, MCLENNAN LIBRARY
1190 FORT ST, APT 201, MONTREAL 108 QUE
933-7119

BRISTOL, MICHAEL D, PROF 392-5014
B A (YALE), PH D (PRINCETON)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
4742 GROSVENOR AVE, MONTREAL QUE

BROECKAERT, STEPHEN E, MR 392-4389
BIOCHEMISTRY, MCINTYRE MED SC CENT
1495 BARON ST, APT 104, GREENFIELD PARK QUE

BROOK, PAMELA, MISS 392-5294
REGISTRAR S OFFICE, ADMINISTRATION BLDG
3455 AYLMER ST, APT 1001, MONTREAL 130 QUE

BROOKFIELD, HAROLD C, PROF 392-5499
BA HONS (LONDON), PHD (LONDON)
PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
439 ELM AVE, WESTMOUNT QUE 932-4897

BROOKS, C EMERSON, DR
B SC (ACADIA), M D (DALHOUSIE)
F R C S (C)
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
MCGILL-M G H SURGERY CLI, 1650 CEDAR AVE,
MONTREAL 109 QUE
158 PORTLAND AVENUE, TMR PQ

BROOKS, DOROTHY L, MISS 392-5813
RESIDENCE MANAGER ROYAL VICTORIA COLLEGE ADMIN
3425 UNIVERSITY ST
6815 SHERBROOKE ST W, APT 32 MONTREAL QUE

BROSH, AMIEL, DR
M SC(AGR) (HEBREW), M SC(GEOGR) (HEBREW),
PH D (LONDON)
VISITING PROFESSOR GEOGRAPHY
BURNSIDE HALL
DEPT OF GEOGRAPHY, HEBREW UNIV OF JERUSALEM,
JERUSALEM ISRAEL

BROTT, ALEXANDER, PROF 392-4958
L MUS (MCG), LAUREA (QUE ACAD),
MUSDOC (CHIC U CLLG), P G DP (JULLIARD)
F R S A (ENG)
PROFESSOR FACULTY OF MUSIC
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
5459 EARNSCLIFFE AVE, MONTREAL QUE 487-5190

BROUGHTON, ROBERT S, PROF 453-6580
BSA (TORONTO), B A SC (TOR), SM (MIT)
PH D (MCGILL)
CEPQ
ASSOCIATE PROFESSOR
DEPARTMENT OF AGRIC ENGINEERNG
AGRIC ENGINEERING, MACDONALD COLLEGE,
ST ANNE DE BELLEVUE QUE
582 CHURCH ST, BEACONSFIELD 870 QUE 697-5162

BROWN-GRANT, NORMA, MRS 392-4910
EXPERIMENTAL MED, STRATHCONA MED BLDG
3750 CORONET RD, APT 2, MONTREAL 247 QUE
392-4910

BROWN, BARBARA L, MISS 453-6580
ENTOMOLOGY DEPT, MACDONALD COLLEGE 800, QUE
7 PERRAULT AVE, STE ANNE DE BELLEVUE QUE
453-2600

BROWN, GEORGE R, DR 392-4434
B SC (MANITOBA), PH D (MCGILL)
DEMONSTRATOR SENIOR CHEMISTRY
OTTO MAASS CHEM BLDG
501 DAVIGNON DRIVE, DOLLARD DES ORMEAUX QUE
683-7395

BROWN, GWENDOLYN, MRS 392-4968
MCLENNAN LIBRARY - CAT, MCLENNAN LIBRARY
200 KENSINGTON AVE, APT 102, WESTMOUNT 932-2746

BROWN, HARVEY C, DR
MD (QUEENS KINGSTON)
F R C S (C)
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
DEPARTMENT OF SURGERY, 1650 CEDAR AVE,
MONTREAL QUE
46 ACADEMY RD, APT 17, WESTMOUNT QUE 935-4181

BROWN, HUMPHREY, MR 392-8099
B SC (MCGILL)
ELECTRONICS WORKSHOP, MCINTYRE MED BLDG
2360 BEACONSFIELD, NDG MONTREAL QUE 489-3275

BROWN, JOANN, MS 392-4879
ANAESTHESIA RES DEPT
2360 BEACONSFIELD, MONTREAL 261 QUE 489-3275

BROWN, MARGARET S., MRS 392-5282
SPEC FDS ACCOUNTING, ADMINISTRATION BLDG
5145 COTE ST LUC RD, APT 47 MONTREAL 248 PQ
489-9530

BROWN, MARGARET, MRS 392-5869
FACULTY OF ENGINEERING, MACDONALD ENGR BLDG
1915 VIAU ST, MONTREAL QUE

BROWN, NORA L A, MISS 453-6580
LYMAN ENTOMOLOGICAL MUSE, MACDONALD COLLEGE,
800 P QUE
19 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-5830

BROWN, REA ARTHUR, DR 392-4885
B SC (MCG), MD CM (MCG), M SC (MCG)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MGH, 1650 CEDAR AVE, MONTREAL 109 QUE
303 BERKSHIRE, BEACONSFIELD QUE 331-6851

BROWN, WILLIAM G, PROF 392-5907
BA (TORONTO), M A (COL), PH D (TORONTO)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
2 ALEXIS NIHON PLAZA, APT 702,

WESTMOUNT 216 QUE 937-6483

BRUCE, ANTHONY G, MR 392-4513
REDPATH LIBRARY, 3459 MCTAVISH ST
5367 VERDUN AVE, VERDUN 204 QUEBEC

BRUCE, GEORGE, MR
DUPLICATING SERVICE, MCLENNAN LIBRARY
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BRUCE, MARGARET, MRS 392-4989
ASSOCIATE PROFESSOR ENGLISH
ARTS BUILDING
2017 GREY AVE, MONTREAL, PQ

BRUCE, WILLIAM, PROF 392-5860
BASC (TORONTO), MASC (TORONTO)
ENG, A S M E
ASSOC DEAN STUDENT AFFAIRS ENGINEERING FAC
PROFESSOR DEPT OF MECHANICAL ENGINEERING
ASSOCIATE DEAN FACULTY OF ENGINEERING
FACULTY OF ENGINEERING, MACDONALD ENGR BLDG
3445 DRUMMOND ST, APT 807 MONTREAL QUE 843-6327

BRUCK, MAGGIE, MISS 937-8511
B A (WHEATON COL), PHD (MCGILL)
SESSIONAL LECTURER MCGILL-MCH LEARNING CTR
RESEARCH ASSOCIATE MCGILL-MCH LEARNING CTR
MCGILL-MCH LEARNING CTR, 3640 MOUNTAIN ST
3460 SIMPSON ST, APT 3, MONTREAL QUE 937-6201

BRUNEAU, THOMAS, PROF 392-5247
BA (SAN JOSE STATE), M A (U C BERKELEY),
PHD (U CALIF BERKELEY)
ASSISTANT PROFESSOR POLITICAL SCIENCE
LEACOCK BLDG
1955 FONTARABIE ST, LAPRAIRIE QUE 659-1623

BRUNET, DIANA, MRS 392-5712
LIBRARY, PHYSICAL SCIENCES CENTRE
8220 MARQUETTE ST, APT 2, MONTREAL QUE 729-0412

BRUNET, JEAN, PROF 392-5435
B A SC (POLYTECHNIQUE MTL), M SC (FLORIDA),
PH D (U OF FLORIDA)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
19 ADAMS ST, CANDIAC QUE 659-5864

BRUNTON, LAUDER, DR 181-1511
BSC (MCGILL), M D C M (MCG), MD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
3182 THE BLVD, WESTMOUNT QUE

BUCHANAN, KINA M, MRS 392-5978
B A (MCGILL), M A (MCGILL)
ASSOC DIRECTOR MCGILL REPORTER
MCGILL REPORTER, F CYRIL JAMES BLDG
APT 226 HABITAT 67, MONTREAL QUE 871-1089

BUCKLAND, ROGER B, DR 453-6580
BSC (MCGILL), M SC (MCGILL), PH D (MARYLAND)
ASSISTANT PROFESSOR
DEPARTMENT OF ANIMAL SCIENCE
ANIMAL SCIENCE, AGRICULTURE,
MACDONALD COLLEGE 800
BOX 279, MACDONALD COLLEGE QUE 453-4933

BUFFETT, LAWRENCE, DR 766-8511
B SC (DALHOUSIE), MD (DALHOUSIE)
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP, DOUGLAS HOSPITAL
6280 DECARIE BLVD, MONTREAL QUE 733-4958

BUI, TIEN DAI, DR 392-5464
PROFESSIONAL ASSOC
DEPT OF MECHANICAL ENGINEERING
PROFESSIONAL ASSOC RESEARCH ▮ EQUIPMENT FUND
DEPT OF MECHANICAL ENGIN, MACDONALD ENG BLDG
3463 ST FAMILLE ST, APT 1412, MONTREAL 849-6432

BUKA, NORMAN J, DR
BSC (MCGILL), MDCM (MCGILL)
L M C C, L P Q, C P S Q, F R C S
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBS & GYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
36 EDGEHILL RD, WESTMOUNT 217 QUE

BULL, DORIS MARY, MRS 392-8873
EDUCATION, 3700 MCTAVISH
17 PERRAULT AVE, STE ANNE DE BELLEVUE 800, QUE

BUNGAY, HOWARD EDWARD, MR 392-8882
NON-ACADEMIC RANKS FAC OF MANAGEMENT BLDG
PHYSICAL PLANT, 840 MCGREGOR AVENUE
234 WESTCROFT RD, BEACONSFIELD QUE 695-2724

BUNGE, MARIO AUGUSTO, PROF 392-5302
PH D (LA PLATA)
PROFESSOR PHILOSOPHY
3479 PEEL ST
ETH ATTENHOFERSTRASSE 43, 8032 ZURICH,
SWITZERLAND 932-8314

BURDETT, BETTY, MRS 453-6580
DEPT OF HORTICULTURE, MACDONALD COLLEGE 800,
QUE
6 ST JOHN S RD, POINTE CLAIRE QUE 697-4199

BURFOOT, MICHAEL F, DR
BA (OXFORD), MA (OXFORD)
L M C C, C A R C
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
LAKESHORE GEN HOSPITAL
35 COTE ST ANTOINE, MONTREAL 217 QUE

BURGESS, DONALD ARTHUR, PROF 392-8815
B SC (DURHAM), DIP ED (DURHAM), M A (DURHAM)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
COORDINATOR UNDERGRAD DIPLOMA PROGRAM
EDUCATION, 3700 MCTAVISH
RIVERMEAD, MACDONALD COLLEGE QUE 453-3058

BURGESS, JEANNE, MISS 392-5426
MINING ENG & APPL GEO, MCCONNELL ENG BLDG
3455 STANLEY ST, APT 105, MONTREAL 112 849-3365

BURGESS, JOANNE, MRS 392-8217
B A (MCGILL), M A (U OF T)
LECTURER ENGLISH
DEPARTMENT OF ENGLISH, ARTS BLDG
4330 SHERBROOKE ST WEST, APT 6 WESTMOUNT 215 QU

BURGESS, JOHN HERBERT, DR 937-6011
BSC (MCGILL), MDCM (MCGILL)
FRCP(C)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
MED & CLIN MED M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
639 MURRAY HILL, MONTREAL 217 QUE 486-7806

BURNETT, EDWARD, MR 392-5111
BA (SIR GEORGE WILLIAMS), B A (SIR G WMS),
MSC APPL (MCGILL)
ASSISTANT DIRECTOR
CONT ED-BUSINESS ▮ MANAGEMENT
BUSINESS & MANAGEMENT, STRATHCONA HALL
3780 SEWELL ST, MONTREAL 131 QUE 849-4482

BURNS, MILDRED L, MS 392-8834
BSC (UNIV OF NEBRASKA),
PHD (STANFORD UNIVERSITY)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH ST
11 PILON AVE, BEACONSFIELD QUE

BURPEE, PETER G, PROF 392-8817
B SCIENCE (MCGILL), M EDUCATION (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FAC OF ED, EDUCATION BUILDING, 3700 MCTAVISH
163 RIVERMERE RD, ST LAMBERT, CO CHAMBLY QUE
672-5898

BURRAGE, DAVID JOHN, PROF 392-4981
BA (CAMBRIDGE), MA (CAMBRIDGE), MSC (BRUNEL)
ASSISTANT PROFESSOR COMPUTING CENTRE
BURNSIDE HALL
180 WOODSIDE CRES, BEACONSFIELD QUE 695-3145

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BUSSEAU, THERESE, MRS 181-1781
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST,
MTL P Q
2660 CHARLES GARNIER, DUVERNAY, LAVAL QUE
663-5874

BUSSEY, A HOWARD, PROF 392-5826
B SC (BRISTOL), PH D (BRISTOL)
ASSISTANT PROFESSOR BIOLOGY
STEWART BIOLOGY BLDG
1734 CEDAR AVE, MONTREAL 109 PQ

BUTAS, CONSTANDINA, DR 181-598
BACCALAUR (NDS GALATI),
MD (REGELE FERDINAND CL)
SMPQ
ASSOCIATE PROFESSOR MICROBIOLOGY ▮ IMMUNOLOGY
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
ASSOCIATE PROFESSOR RESIDENCY PROGRAMME
MICROBIOLOGY & IMMUN, 3775 UNIVERSITY STREET, MONTREAL 112 P Q
3555 ATWATER AVE APT 403, MONTREAL 109 PQ 937-0461

BUTEAU, MAGDELHAYNE F, PROF 392-8863
B A (MONTREAL), B ED (U DE M), MA (U DE M)
PHD INTERD (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST, MONTREAL QUE
8449 LAJEUNESSE ST, MONTREAL 352 QUE 387-4391

BUTLER, ALBERT A, DR 842-1251
B SC (MCGILL), M D C M (MCGILL)
LECTURER DEPARTMENT OF SURGERY
SURGERY ORTHOPEDICS, ROYAL VICTORIA HOSPITAL
1538 SHERBROOKE ST W, MONTREAL QUE

BUTLER, IAN SYDNEY, PROF 392-4455
BSC (BRISTOL), PHD (BRISTOL)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
28 ILE DEMAI, STE THERESE OUEST QUE 625-6554

BUTLER, JEAN W, PROF
B A (NYU), M A (U OF C), PH D (WASHINGTON)
ASSISTANT PROFESSOR SCHOOL OF COMPUTING SCIENCE
BURNSIDE HALL
C/O SCHOOL OF COMPUTER S, BURNSIDE HALL

BUTLER, LYNN, MISS 392-8865
B ED (MCGILL), M OF EDUC (MCG)
LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
3467 ONTARIO AVE, APT 302, MONTREAL QUE

BUTLER, NOREEN M, MRS 392-4968
BA(ENGLISH) (U BC), BA(ENGLISH) (U BC)
CATALOGUING, MCLENNAN LIB
306 GROSVENOR, WESTMOUNT PQ 935-3321

BUTLER, WILLIAM, MR 392-8297
B A (QUEEN S U), M A (U OF T)
RESEARCH ASSISTANT MATHEMATICS
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
6630 SHERBROOKE ST W, APT 1201, MONTREAL 262 QUEBEC 489-2610

BUTT, RICHARD, PROF 392-8865
TEACH CERT (ST PAULS), B ED (SASK),
DIP ED (SASK), M ED (SASK)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
ELEMENTARY EDUCATION, 3700 MCTAVISH STREET
30 SHERATON DRIVE, APT 3 MONTREAL 263

BUTT, W PAUL, DR
MD (TORONTO)
F F R, F R C P (CAN)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
DIAGNOS RAD M G H, 1650 CEDAR AVE, MONTREAL 109 QUE
26 AINSLIE AVE, MONTREAL 153 QUE

BYRNE, BRIDGET, MISS 181-1759
CARDIOLOGY, ROYAL VICTORIA HOSPITAL,
2 MEDICAL CARDIOLOGY
5215 DECARIE BLVD, APT 10, MONTREAL 248 QUE 488-8835

BYSTRAM, AGATHA M, MRS 392-4705
. B L S (MCG), M L S (MCG)
LIBRARIAN REDPATH LIBRARY
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C B CAVE, GENILLE, PROF 392-8097
BA (BRITISH COLUMBIA), M A (U B C),
PHD (MASS INST OF TECH)
FCIC
PROFESSOR CHEMISTRY
DIRECTOR OF EDUCATIONAL DEVELOPMENT
ADMINISTRATION BUILDING
CHEMISTRY DEPT, OTTO MAASS BLDG
3500 MOUNTAIN ST, APT 58 MONTREAL 109 QUE 844-9691

CAHEN, PAUL JEAN, DR 392-8291
DIPLOME (ECOLE POLYTECHNIQUE),
3E CYCLE (PARIS), PH D (QUEEN S)
LECTURER MATHEMATICS
RESEARCH ASSISTANT MATHEMATICS
MATHEMATICS, BURNSIDE HALL
3660 LORNE CRESCENT, APT 10 MONTREAL 130 PQ

CAHILL, CYRIL F, DR 844-3971
BSC (MCGILL), MD (HEIDELBERG)
ASSOC DIRECTOR MENTAL HYGIENE INSTITUTE
PSYCH MENTAL HYG INST, 3690 PEEL ST, MONTREAL QUE
3035 BARAT RD, MONTREAL 218 QUE

CAHN, CHARLES, DR
MD (TORONTO)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP, 6875 LA SALLE BLVD, VERDUN QUE
6825 LASALLE BLVD, VERDUN QUE 766-8511

CAHN, SHIRLEY, MRS 392-4651
BSC (MCGILL), MSC (MCGILL)
DEMONSTRATOR SENIOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
2440 PATON ST, ST LAURENT QUE 744-4025

CALALB, AUREL, DR
MD (BUCHAREST)
DOCTOR MED & SUR
DEMONSTRATOR SENIOR DEPARTMENT OF ANATOMY
ANATOMY, STRATHCONA MEDICAL BLDG
5258 SHERBROOKE ST W, APT 11, MONTREAL 488-9496

CALLEGARINI, UMBERTO, DR
B A (TITO LIVIO), M D C M (PADUA)
F A A P, C S P Q
LECTURER DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
1550 NORWAY RD, MONTREAL 306 QUE

CALUORI, PHILLIPA, MRS 392-8868
ADM ASSISTANT III FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
55 ST ANDREWS ROAD, BAIE D URFE QUE 453-3360

CAMERON, ARCHIBALD F, DR
D D S (MCG)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND ST
1414 DRUMMOND ST, MONTREAL QUE

CAMERON, DOUGLAS GEORGE, DR 937-6011
MC
B SC (SASK), M D C M (MCGILL), B SC (OXON)
PROFESSOR UNIVERSITY CLINIC M G H
PROJECT DIRECTOR BAFFIN ZONE PROJECT
DIRECTOR BAFFIN ZONE & KENYA MED PROJECTS
MCG U MED CLINIC, MTL GEN HOSP,
1650 CEDAR MTL 109 QUE
227 PORTLAND AVE, TOWN OF MT ROYAL 305 QUE 733-8515

CAMERON, MARTHA, MRS
MCINTYRE ANIMAL CENTRE, MCINTYRE MED SCI CTR
4411 DUMAS ST, PIERREFONDS QUE

CAMPBELL, HARRIET, MRS 392-4776
BSC (MCGILL)
ACTING REGISTRAR MCCORD MUSEUM
690 SHERBROOKE ST W
20 ANWOTH RD, MONTREAL 217 QUE

CAMPBELL, HELEN B, MRS 392-5160

FACULTY CLUB, 3450 MCTAVISH ST
149 LAKESHORE RD, POINTE CLAIRE QUE 695-3867

CAMPBELL, JAMES FULTON, PROF 392-4607
BSC (RUTGERS), M A (VIRGINIA), PHD (VIRGINIA)
ASSISTANT PROFESSOR PSYCHOLOGY
STEWART BIOL SC BLDG
1212 PINE AVE WEST, APT 702, MONTREAL 112 QUE 843-7284

CAMPBELL, PATRICK, DR
MD (DUBLIN NATIONAL),
DPM (DUBLIN TRINITY COLL)
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY ST MARY S HOS
4555 BONAVISTA APT 105, MONTREAL PQ 488-7529

CAMPBELL, SUSAN, PROF 392-4688
B A (HON) (MCGILL), M SC (MCG), PHD (MCGILL)
ASSISTANT PROFESSOR PSYCHOLOGY
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHOLOGY, MONTREAL CHILDRENS HOSP
1212 PINE AVE W, APT 702, MONTREAL 112 QUE

CANNADINE, PHYLLIS AUDREY, MRS 453-6580
MICROBIOLOGY, MACDONALD COLLEGE QUE
1 BROWN ST APT 10, STE ANNE DE BELLEVUE QUE 453-7313

CANTLIE, GEORGE S D, DR
BSC (HONS) (BISHOPS), M S C (MCG),
MD CM (MCGILL)
FRCP
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, HAEMATOLOGY 2 MAIN RVH
483 ROSLYN AVE, WESTMOUNT QUE

CANTOR, KENNETH ZACHARY, DR 937-6011
B SC (MCGILL), MD CM (MCGILL)
F R C P C
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
5850 SOUART AVE, APT 7, MONTREAL QUE

CAPE, MARY E, MISS 392-4816
B A (MCGILL)
ASSOC DIRECTOR MCGILL ALMA MATER FUND
3618 UNIVERSITY ST
9045 GOUIN BLVD WEST, MONTREAL 387 QUE 334-7155

CAPEK, RADAN, DR 392-5763
MD (CHARLES UNIV PRAGUE),
PHD (CZECHOSL ACAD SCI PRAGUE)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARM & THER, MCINTYRE MED BLDG
4851 COTE ST LUC RD, MONTREAL QUE 489-8164

CAPLAN, HYMAN, DR
BA (MCGILL), MD CM (MCGILL)
F A P A, DIPL PSYCHIATRY, CERT PSYCHIATRY
SPEC CERT PSYCH
PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY M C H, 2300 TUPPER, MONTREAL 108 QUE
3010 THE BOULEVARD, MONTREAL 109 QUEBEC, APT A44

CARLMAN, NANCY, MRS 392-8848
A B (ROCHESTER), M A T (WESLEYAN)
SESSIONAL LECTURER FACULTY OF EDUCATION
4418 BEACONSFIELD AVE, MONTREAL 261 QUE 481-4505

CARLONE, JOHN., MR. 392-5922
UNIV LANG LAB, PETERSON HALL
128 ROYAL ST, CHATEAUGUAY QUE 691-4944

CARON, YVES, PROF 392-5250
BA (MONTREAL), LLL (MONTR), LLM (COLUMBIA)
D PHIL (OXFORD)
ONPQ
ASSOCIATE PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
3647 NORTHCLIFFE AVE, MONTREAL 260 QUE 487-3578

CARPENTER, STIRLING H, DR 842-1251
AB (PRINCETON), MD (TEMPLE)
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
ASSOCIATE PROFESSOR PATHOLOGY SERVICE
ASSOCIATE PROFESSOR NEUROPATHOLOGY LABORATORY
NEUROLOGY & NEUROSURGERY, M N I
1321 SHERBROOKE ST W, APT D30, MONTREAL QUE

CARRE, ANTOINE, DR 761-4974
P C B (HAITI), M D (HAITI),
DIP IN PSYCHIATRY (MCGILL)
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
215 ELGAR RIVE, NUN S ISLAND 201 QUE

CARRIE, JUDITH, MRS
MANAGEMENT LIBRARY, 1001 SHERBROOKE ST WEST
12100 PIERREFONDS BLVD, APT 312,
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CARROLL, MARGARET, MRS 392-4943
BLS (U OF TORONTO)
LIBRARIAN MCLENNAN LIBRARY - REFERENCE
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CARROLL, MICHAEL P, PROF 392-5172
B A (STANFORD), M A (STANFORD), PH D (STANFORD)
ASSISTANT PROFESSOR SOCIOLOGY
DEPT OF SOCIOLOGY, LEACOCK BLDG
3433 DUROCHER APT 603, MONTREAL QUE 843-7476

CARROLL, ROBERT L, PROF 392-5991
BSC (MICHIGAN STATE UNIV), M A (HARV),
PHD (HARVARD)
ASSOCIATE PROFESSOR REDPATH MUSEUM
PROF J LEWIS
7380 DE ROQUANCOURT AVE T M R,
MONTREAL 301 QUE 733-7939

CARSON, MICHAEL A, PROF 392-8245
B A (HONS) (CAMBRIDGE), M A (CANTAB),
PH D (CAMBRIDGE)
ASSOCIATE PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
3328 TROIE AVE, APT 905, MONTREAL 247 QUE

CARTLIDGE, JOHN, MR 392-5070
SUPERVISOR BLDG SERVICES
PHYSICAL PLANT, 840 MCGREGOR
3654 DRUMMOND ST, MONTREAL QUE

CARTLIDGE, WENONAH, MRS 392-5281
ACCOUNTING DEPT, ADMINISTRATION BLDG
3654 DRUMMOND ST, MONTREAL 109 QUE

CARTWRIGHT, GLENN F, MR 392-8897
B A (SGWU), DIP ED (MCGILL), M A (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
DEPT OF EDUC PSYCHOLOGY
2444 BENNY CRESCENT, MONTREAL 261 QUE 486-5310

CARTWRIGHT, MICHAEL T, PROF 392-4674
BA (EXETER), D DE LUNIV (AIX-MARSEILLE)
MLA, APFUC
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG & LITERATURE, PETERSON HALL
4854 COTE DES NEIGES RD, APT 804,
MONTREAL 247 QUE

CARTY, SHARON, MRS 392-5028
B SC N (NIAGARA)
R N
LECTURER SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
2255 CLOSSE ST, APT 4, MONTREAL 108 QUE

CASSIDY, RAY GORDON, MR 453-6580
DEPARTMENT OF AGRIC ENGI, MACDONALD COLLEGE 800 QUE
4 POULTRY COTTAGE BOX 49, MACDONALD COLLEGE QUE 453-6924

CAVADIAS, GEORGE S, PROF 392-5871
B ENG (ATHENS POLYTECHNIC), M SC (MCGILL)
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
5242 DALOU, MONTREAL 248 QUE 489-0263

CAYNE, DAVID, MR 392-5367
B A (MCGILL), B C L (MCGILL)
LL M
ASSISTANT PROFESSOR FACULTY OF LAW

LAW FACULTY, CHANCELLOR DAY HALL
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B A (DARTMOUTH), M A (OXON), B LITT (OXON)
PROFESSOR ENGLISH
ARTS BLDG
379 PRINCE ALBERT ST, MONTREAL 215 QUE 486-9107

CERVETTI, WANDA, MS 392-5489
GEOGRAPHY, BURNSIDE HALL
10921 HEBERT AVE, MONTREAL 459 QUE 324-7462

CHADDA, TAHIRA, MRS
B SC (PAKISTAN)
CATALOGUING, MCLENNAN LIBRARY
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CHAGNON, LOUIZE, MISS 392-4799
DUPLICATING OFFICE, ADMINISTRATION BLDG
10337 AUDOIN, MONTREAL NORTH 459 QUE

CHAMBERS, DAVID WADE, DR
RESIDENCE DIRECTOR OF MOLSON HALL
CO-ED RESIDENCES, MOLSON HALL
MOLSON HALL, 3915 UNIVERSITY ST, MONTREAL QUE

CHAMPIGNEUL, YVONNE H, PROF 392-4486
BACCALAUREAT (SORBONNE),
AGREGATION (FRANCE SORBONNE)
ASSOCIATE PROFESSOR FRENCH
ROMANCE LANGUAGES, PETERSON HALL
495 PRINCE ARTHUR ST W, APT 12, MONTREAL QUE

CHAMPNESS, CLIFFORD H, PROF 392-5392
BSC (LONDON), M SC (LOND), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
135 PRINCE RUPERT DR, POINTE CLAIRE QUE 697-6991

CHAN, EDDIE C S, PROF 181-1771
BA (TEXAS), M A (TEXAS), PH D (MARYLAND)
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICRO & IMMUN, NEW PATHOLOGY BLDG
5601 MIERRMAC RD, COTE ST LUC, MONTREAL QUE 482-0599

CHAN, JOAQUIN, MR
M D (FAR EAST U)
LECTURER DIAGNOSTIC RADIOLOGY
1650 CEDAR AVE, MONTREAL 109 QUE
C/O MONTREAL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE

CHAN, KONYIL, MR 453-6580
B SC (SUN YET SAN UNIV)
ENTOMOLOGY DEPT, MACDONALD COLLEGE,
ST ANNE DE BELLEVUE QUE
24 ST GEORGE ST APT 114, STE ANNE DE BELLEVUE Q 453-3284

CHAN, MAUREEN, MRS 392-4971
PHYS SCIENCES LIB, 3450 UNIVERSITY ST
24 ST GEORGE ST APT 114, STE ANNE DE BELLEVUE, QUE 453-3284

CHAN, RICHARD W L, MR
B SC HONS (MCGILL)
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
P O BOX 1541 STATION B, MONTREAL 110

CHAN, TAK-HANG, PROF 392-4442
B A (TORONTO), M A (PRINC), PH D (PRINCETON)
ASSOCIATE PROFESSOR CHEMISTRY
CHEMISTRY DEPT, OTTO MAASS CHEM BLDG
411 SMART AVE, MONTREAL WEST QUE 481-9789

CHANDLER, BEVERLY, MS
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CHANG, JENNIE H, MISS 392-4280
B A (TAIWAN), M A (HARV)
LECTURER EAST ASIAN LANGUAGES
3483 PEEL ST
318 ELM AVE, WESTMOUNT QUE 931-2168

CHANG, THOMAS M S, DR 392-4346
B SC (MCGILL), MD CM (MCG)
FRCP(C)
PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SCI CTR

CHANNON, RICHARD M, MR 453-6580
ANIMAL SCIENCE, MACDONALD COLLEGE,
ST ANNE DE BELLEVUE QUE
R R 1 STE MARIE RD, STE ANNE DE BELLEVUE QUE 453-4101

CHAPMAN, DOROTHY PARSHALL, MRS 392-4947
B A (MCGILL)
YMCA IN MCGILL, 3625 AYLMER, MONTREAL 130 QUE
C/O 3625 AYLMER, MONTREAL 130 QUE

CHARAN, KIRTI K, PROF 392-5940
B A (LUCKNOW UNIVERSITY), M A (LUCKNOW),
MA (USA), PH D (MCGILL UNIVERSITY)
ASSOCIATE PROFESSOR DEPT OF OTOLARYNGOLOGY
HUMAN COMM DISORDERS, BEATTY HALL
137 DOBIE AVE, MONTREAL 304 QUE 739-4431

CHARBONNEAU, GERHARD, MR 392-5332
PURCHASING DEPT, ADMINISTRATION BLDG,
MCGILL CAMPUS

CHARBONNEAU, MARIELLE, MRS 392-8053
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
65 GAUTHIER APP 4, STE-THERESE DE BLAINV, QUE 435-5297

CHARLEBOIS, JOYCE, MRS 392-5829
B SC (MCGILL)
BOTANY LIB, STEWART BIOL BLDG
432 QUINN BLVD, LONGUEUIL QUE 674-9371

CHARRIER, JEAN MICHEL, PROF 392-5223
INGENIEUR (EN ARTS ET METIERS),
PH D (AKRON OHIO)
ASSISTANT PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
5835 DECELLES PL, APT 4 MONTREAL 251 QUE 739-8134

CHARRON, RENEE, MISS 392-4438
CHEMISTRY, OTTO MAASS CHEM BLDG
1420 TOWERS ST, APT 414 MONTREAL 108 QUE 937-7537

CHARTERIS, JOAN NANCY, PROF 392-4722
BA (HON) (MCGILL), MA (MCG), MA (MCGILL)
ASSISTANT PROFESSOR HISTORY
HISTORY DEPT, STEPHEN LEACOCK BLDG
3421 DRUMMOND ST, APT 87 MONTREAL QUE

CHASE, RONALD, PROF 392-4664
A B PSYCHO (STANFORD), PH D (MIT)
ASSISTANT PROFESSOR BIOLOGY
STEWART BIOLOGY BLDG
463 ELM AVE, WESTMOUNT 217 QUEBEC 937-9765

CHATTOPADHYAY, ARUP, DR
B ENG (CALCUTTA), M ENG (CALCUTTA),
PH D (IIT KAN)
DEMONSTRATOR SENIOR DEPT OF CIVIL ENG
RESEARCH ASSOCIATE DEPT OF CIVIL ENG
DEPT OF CIVIL ENG, MACDONALD ENG BLDG
9379 BOUL LASALLE, APT 112 LASALLE P Q 365-9281

CHENG, HAZEL PEI-LING, DR 392-4906
LECTURER DEPARTMENT OF ANATOMY
LECTURER FACULTY OF DENTISTRY
DEPARTMENT OF ANATOMY
501 PINE AVE WEST APT 8, MONTREAL QUE 845-2897

CHENG, JOE Y, MR 392-5285
B COMM (MCG)
L R S M
INT AUDITOR ADMINISTRATION
INTERNAL AUDIT, ADMINISTRATION
2020 FILION ST, MONTREAL 381 QUE 336-6768

CHERNA, JOHN C, PROF 392-5481
DIPL ING (SWISS FED INSTITUTE)
ENG CEQ, MCSME
ASSOCIATE PROFESSOR

DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
5511 WESTBOURNE AVE, COTE ST LUC QUE 489-6216

CHERNEY, BRIAN, PROF 392-4526
MUS M (U OF TORONTO)
ASSISTANT PROFESSOR FACULTY OF MUSIC
4507 WILSON AVE, MONTREAL 260 QUE 486-3698

CHERRY, NEIL J, DR 392-4463
BSC(HONS) (CANTERBURY), P H D (CANTERBURY)
TEACHING FELLOW METEOROLOGY
RESEARCH FELLOW METEOROLOGY
SESSIONAL LECTURER METEOROLOGY
METEOROLOGY, BURNSIDE HALL
625 MILTON ST APT 302, MONTREAL 130 QUE
843-7890

CHESNEY, L P, DR
BA (MCGILL), MD CM (MCGILL)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
1414 DRUMMOND ST, MONTREAL QUE

CHEVRIER, MICHELINE, PROF 453-6580
B A (UNIV DE MONTREAL), M A (UN DE MONTREAL)
ASSISTANT PROFESSOR SCHOOL OF FOOD SCIENCE
WOMENS RESIDENCES, MACDONALD COLLEGE
P O BOX 97, MACDONALD COLLEGE QUE 453-6311

CHILDS, SUSAN E, MISS 453-6580
DIPL IN AGRIC (MACD C)
COMPUTING CENTER, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE PQ
455 ALGONQUIN AVE, MONTREAL 16 QUE 738-0525

CHIU, CHU JENG, DR 937-6011
M B (NAT TAIWAN UN)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
MED RESEARCH SCHOLAR
MCGILL-R V H SURGERY CLINIC
DEPT, ROYAL VICTORIA HOSP
4570 BESSBOROUGH AVE, MONTREAL 261 QUE 937-6011

CHLUMSKY, JAN, MR 392-4433
ELECT ENGR (PRAGUE)
LINGUISTICS, 3465 PEEL
3095 BEDFORD RD APT 10, MONTREAL 251 QUE
733-4670

CHOKSI, JAL, PROF 392-5376
BA (CAMBRIDGE), PHD (MANCHESTER)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
456 WESTMINSTER AVE, MONTREAL QUE 489-5141

CHOMAY, JOHN, PROF 392-4966
CFD
B SC (PE) (MCGILL), M A (MINNESOTA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
SIR ARTHUR CURRIE GYM, 475 PINE AVE W,
MONTREAL QUE
461 CHESTNUT ST, ROSEMERE QUE 622-7862

CHOQUETTE, ELIZABETH, MRS 392-3029
BIOCHEMISTRY DEPT, MCINTYRE MED BLDG
1005 LATOUR ST, APT 2, ST HUBERT QUE

CHRETIEN, MICHEL, DR
BA (MONTREAL), MD (MONTREAL), M SC (MCGILL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
176 BERKLEY ST, ST LAMBERT QUE 842-1481

CHRISTENSEN, CAROLE C, MRS 392-4356
B A (HOWARD UNIV), M S W (UNIV MICHIGAN)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
10 EVERGREEN CRESCENT, BEACONSFIELD 880 QUE
695-8311

CHRISTENSEN, VALERIE, MISS 392-3064
MEDICAL LIBRARY, MCINTYRE MED BLDG
335 MORTLAKE AVE, ST LAMBERT QUE 392-3064

CHU, VINCENT H, PROF 392-5971
B SC ENG (NATIONAL TAIWAN U), M A (TORONTO),
PH D (M I T)
ASSISTANT PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENG BUILDING
570 MILTON ST, APT 13 842-6730

CHUGTAI, MOHAMMAD, DR
MBBS (PUNJAB), MSC (MCGILL)
F R C S (C)
LECTURER DEPARTMENT OF SURGERY
QUEEN MARY VETS HOSPITAL,
4565 QUEEN MARY RD MTL
4866 COTE DES NEIGES RD, APT 1005D,
MONTREAL 247 QUE

CHUNG, LELAND W K, DR
B S (NATL TAIWAN UNIV),
PH D (UNIV OREGON MED SCH)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
MCINTYRE MEDICAL BLDG
1820 WINDERMERE AVE, DORVAL QUE 631-5027

CHURCHILL, DAVID, DR
B SC (MEMORIAL), MD CM (MCGILL)
TEACHING FELLOW UNIVERSITY CLINIC R V H
LECTURER UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, 4 MEDICAL
778 PONSARD, VILLE BROSSARD P QUE

CLARK, JONATHON, PROF
B A (BERKELEY), PH D (YALE)
VISITING ASST PROF HISTORY
LEACOCK BUILDING
38 1/2 PEARL ST, NEW HAVEN, CONNECTICUT 06511

CLARK, MARIE, MRS 181-454
NEURO & NEUROSURGERY, M N I
3575 UNIVERSITY ST, APT 116, MONTREAL QUE

CLARK, THOMAS A, MR 392-8245
A B (BROWN), M A (U OF IOWA)
VISITING ASST PROF GEOGRAPHY
BURNSIDE HALL
3605 RIDGEWOOD AVE, APT 106, MONTREAL 247 QUE
737-7430

CLARK, THOMAS H, DR 392-5734
BA (HARVARD), PH D (HARVARD)
FGSA, FRSC
FACULTY ADVISOR DEPT
GENERAL RESEARCH FUND, PHYSICAL SCI CENTRE
247 CHESTER AVE, MONTREAL 305 QUE 737-5394

CLARKE, HAZEL M, MISS 453-6580
MACDONALD EXTENSION DEPT, MACDONALD COLLEGE 800
QUE
90 DRAYTON RD, POINTE CLAIRE QUE

CLARKE, SYBIL, MISS 392-4371
BUILDINGS & GROUNDS, 840 MCGREGOR
700-32ND AVE, APT 401, LACHINE 600 QUE

CLEMENT, ENID URSULA, PROF 392-5944
BA (SIR GEORGE WILLIAMS), B L S (MCG),
DIP TEACH (TRINIDAD), MLS (MCGILL UNIVERSITY)
CPLQ
ASSISTANT PROFESSOR
GRAD SCHOOL OF LIBRARY SCIENCE
GRAD SCH OF LIB SCIENCE, MCLENNAN LIB
5351 MONKLAND AVE, MONTREAL 28 QUE 484-6063

CLERMONT, YVES WILFRED, PROF 392-4891
BSC (UNIVERSITE DE MTL), PHD (MCGILL)
PROFESSOR DEPARTMENT OF ANATOMY
ANATOMY, STRATHCONA MED BLDG
567 TOWNSHEND AVE, ST LAMBERT QUE 671-5606

CLIFFORD, JENNY, MRS 392-5740
FACULTY OF ENGINEERING, MACDONALD ENGR. BLDG
9183 JAMAY ST, ST LEONARD QUE 324-0538

CLIFT, ROLAND, PROF 392-5451
B A (CANTAB), MA (CANTAB), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
224 BERLIOZ APT D, NUN S ISLAND,
MONTREAL 201 QUEBEC 769-7504

CLOGG, DONALD K, DR
B SC (MCG), MD CM (MCG)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
1650 CEDAR AVE, MONTREAL 109 QUE
5025 SHERBROOKE ST W, STE 530 MONTREAL QUE

CLYNES, KATHLEEN, MISS 453-6580
LIBRARIAN DIRECTOR'S OFFICE,LIBRARIES
LIBRARIAN MCLENNAN TRAV LIBRARY
DERECTOR'S OFFICE,LIBRAR, MACDONALD COLLEGE 800 QUE
58 OXFORD RD, BAIE D URFE QUE 453-6127

COATES, DONALD F, PROF 392-5427
B ENG (MCGILL), B A (MCG), M A (OXON)
PH D (MCGILL)
PROFESSOR DEPT OF MINING ENGINEERING
MINING ENG & APP GEOPHYS, MCCONNELL ENG BLDG
128 HOWICK ST, OSHAWA 2 ONT

COCCALIS, NICHOLAS G, PROF 392-8875
MA (ABERDEEN), B ED (ALBERTA), M ED (ALBERTA)
PHD (ALBERTA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
APT 52 3500 MOUNTAIN ST, MONTREAL QUE

COHEN, CLARICE, MISS
B A (MANITOBA), M A (TORONTO)
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
1540 SUMMERHILL AVE, APT 407, MONTREAL 109 QUE

COHEN, MAURICE S, DR
B SC (MCG), MD CM (MCG)
RCPS
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, DERMATOLOGY 5 MED RVH
5757 DECELLES AVE, STE 218, MONTREAL QUE

COHEN, MAXWELL, PROF 392-5125
LL D/U N B, LL D/MAN, LLD(YORK), DCL(BISHOPS)
QC
BA (MANITOBA), LL B (MAN),
LLM (NORTHWESTERN CHICAG)
Q C
MACDONALD PROFESSOR FACULTY OF LAW
ASSOCIATE DEAN FACULTY OF LAW
LAW, CHANCELLOR DAY HALL
519 VICTORIA AVE, WESTMOUNT QUE 933-1725

COHEN, MONROE W, PROF 392-4202
B SC (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
DEPARTMENT OF PHYSIOLOGY, MCINTYRE MED SCI CTR
224 BERLIOZ AVE, APT 2C NUNS ISLAND,
MONTREAL 201 QUE 769-3396

COHEN, RONALD IVAN, MR 392-5131
BA (HARVARD), BCL (MCGILL)
ASSISTANT PROFESSOR FACULTY OF LAW
OLD CHANCELLOR DAY HALL, 3644 PEEL STREET
3660 PEEL ST, APT 17, MONTREAL 112 QUE

COIRAZZA, JOSIE, MISS 392-5818
UNDERGRADUATE, REDPATH LIBRARY
7555 CARTIER ST, APT 1, MONTREAL 329 QUE

COLASESSANO, LAURA, MISS 392-5829
BOTANY LIBRARY, 1205 MCGREGOR AVE
7662 VITTEL, MONTREAL 452 PQ 376-7881

COLE, ALISON G, MISS 392-4937
B A (MCGILL), B L S (MCG)
ASSOCIATE LIBRARIAN MCLENNAN LIBRARY - ADMIN
ADMINISTRATION, MCLENNAN LIBRARY
3510 MOUNTAIN ST, APT 73, MONTREAL QUE

COLE, CATHERINE M, DR
BSC (WESTERN ONTARIO), MD (WESTERN ONTARIO)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
DIAG RAD MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
1555 MCGREGOR AVE, MONTREAL 109 QUE

COLE, DESMOND, PROF 392-4992
BA (BRITISH COLUMBIA), MA (BRITISH COLUMBIA)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
16413-24TH AVE, SURREY B C 453-2131

COLEMAN, HELEN, MRS
3458 REDPATH ST
419 ALBERT AVE, SASKATOON SASK 652-8928

COLEY, LAURA, MISS 392-5244
CENTRE FOR CONT EDUC, STRATHCONA HALL
3580 LORNE AVE APT 1304, MONTREAL 130 QUE

COLLE, ALBERT J, DR
F R C D (C)
LECTURER FACULTY OF DENTISTRY
5253 DECARIE BLVD, APT 218, MONTREAL 248 QUE
5253 DECARIE BLVD, SUITE 218, MONTREAL QUE

COLLE, ELEANOR, DR 937-8511
BA (MINNESOTA), MD (MINNESOTA)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
5 RENFREW ST, MONTREAL QUE 486-5577

COLLET, GEORGES-PAUL, PROF 392-4591
LIC ES LET (GENEVA), DOC ES LET (GENEVA)
PROFESSOR FRENCH
FRENCH LANGUAGE LIT, PETERSON HALL
73 CHURCHILL RD, BAIE D'URFE PQ 453-3566

COLLIER, BRIAN, PROF 392-4278
BSC (LEEDS), PHD (LEEDS)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARMACOLOGY AND THERAPE, MCINTYRE MEDICAL
3 PARKLAND AVE, POINTE CLAIRE QUE 482-9775

COLLINS, GEORGE F N, DR
FRCP
MBCHB (EDIN), D C H (LOND)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
PEDIATRICS, UNIV OF NAIROBI,
NAIROBI KENYA E AFRICA
PEDIATRICS DEPT, UNIVERSITY OF NAIROBI,
NAIROBI KENYA E AFRICA

COLLINS, PETER, PROF 392-3095
M A (MANCHESTER), LL M (QUEENS)
FRAIC, ARIBA
PROFESSOR SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
503 VICTORIA AVE, WESTMOUNT, MONTREAL 217 QUE

COMMON, ROBERT, PROF 453-6580
BSC (QUEENS BELFAST), M AGR (BELF), PH D (LOND)
D SC (LONDON)
F R I C, F A I C, F R S C
PROFESSOR DEPARTMENT OF AGRIC CHEMISTRY
AGRICULTURAL CHEMISTRY, MACDONALD COLLEGE 800, QUE
BOX-233, MACDONALD COLLEGE 800, QUE

COMSA, RADU PETER, PROF 392-5394
MSC (INST TECH ZURICH), M ENG (MCGILL)
P ENG, M E I C, S M I E E
PROFESSOR DEPT OF ELECTRICAL ENG
ENGINEERING BLDG
3375 RIDGEWOOD AVE, APT 206 MONTREAL QUE
733-5761

CONDE, VINCENT, MR 392-5992
CURATOR OF INVERTEBRATE ZOOLOGY
REDPATH MUSEUM
51 10TH AVE, ROXBORO 900 QUE 684-4037

CONGOTE, LUIS FERNANDO, DR
DIP NATW (SWISS INST TECH),
DR REF NAT (MARBURG)
PROFESSIONAL ASSIST UNIVERSITY CLINIC R V H
UNIV CLINIC R V H, 687 PINE AVE W,
MONTREAL 112 QUE
3474 HUTCHISON ST, APT 301, MONTREAL QUE

CONLON, PAMELA J, MISS 392-4968
MCLENNAN LIBRARY - CAT, MCLENNAN LIBRARY
355 SIXTH AVE, LASALLE QUE 365-6128

CONNELL, IAN G, PROF 392-4811
BSC (MANITOBA), M SC (MAN), PHD (MCGILL)
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
606 WHITE CRESC, GREENFIELD PARK QUE 676-8379

CONTANDRIOPOULOS, ANDRE P, PROF 392-5833
LIC EN SC ECON (FRANCE), MA (U MONTREAL),
PHD (U MONTREAL)
RESEARCH ASSISTANT DEPT OF EPIDEM & HEALTH
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH

DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
3400 RIDGEWOOD AVE, APT 31, MONTREAL QUE
737-5704

CONTOGOURIS, A P, PROF 392-5142
BACHELOR (ATHENS TECHNICAL),
DOCTORATE (CORNELL)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, THEORETICAL PHYSICS,
OLD CHEMISTRY BLDG
5210 GRAND BLVD, MONTREAL 253 QUE 482-5822

CONWAY, C ABBOT, PROF 392-5942
BA (TORONTO), MA (TORONTO)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
4517 HINGSTON AVE, MONTREAL 261 QUE

CONWAY, JOHN H, MR 392-4391
OFFICE MANAGER
PHYSICAL PLANT, 840 MCGREGOR
7235 PIERRE CORNEILLE, APT 111,
MONTREAL 431 QUE 352-8343

COOK, ALLEN R, DR 392-5928
B S C E (MICHIGAN), M S C E (MICHIGAN),
PH D (MICHIGAN)
VISITING ASSISTANT DEPT OF CIVIL ENG
MACDONALD ENG BLDG
3525 AYLMER APT 505, MONTREAL 130 QUEBEC
842-2630

COOKE, NORMAN E, DR
SPECIAL LECTURER DEPT OF CHEMICAL ENG
MCCONNELL ENG BLDG
RR 1, MILLE ISLES, ST JEROME QUE

COOKE, PATRICIA M, PROF 181-1771
BA (BRITISH COLUMBIA), M SC (MCGILL),
PHD (MCGILL)
CSM
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOL & IMMUNOLOGY, PATH INSTITUTE
R R 1 BELLEFEUILLE, MILLE ILES,
COUNTY ARGENTEUIL QUE 438-2217

COOLEN, JOHANNA M W, DR
LECTURER DEPARTMENT OF ANAESTHESIA
R V H
1400 PINE AVE W, APT 1401, MONTREAL QUE

COOPER, BERNARD, DR 181-1637
BSC (MCGILL), MD (MCGILL)
F R C P (C)
PROFESSOR UNIVERSITY CLINIC R V H
DEPARTMENT OF PHYSIOLOGY, MACINTYRE BLDG
32 ARLINGTON AVE, WESTMOUNT 217 QUE 937-6994

COOPER, INGRID, MRS 392-5007
BA (SIR GEORGE WILLIAMS), M S W (MCGILL)
DEPARTMENT OF PSYCHIATRY, FORENSIC CLINIC
12-C PERREAULT AVE, STE ANNE DE BELLEVUE QUE
453-1775

COOPER, JANET E, MRS 392-4328
FACULTY OF MEDICINE, MCINTYRE MEDICAL BLDG
626 RAYMOND ST, ST JOHNS QUE 348-2901

COOPER, S R, DR
BA (MCGILL), MD (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED,
ROYAL VICTORIA HOSPITAL
4333 WESTERN AVE, WESTMOUNT QUE

COOPERBERG, ARTHUR, DR
BSC (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
JEWISH GEN HOSPITAL, 3775 COTE ST CATHERINE,
MONTREAL 249 QUE
395 COTE ST CATHERINE, MONTREAL QUE 342-3111

CORBALLIS, MICHAEL, PROF 392-4711
B SC (VICTORIA), M SC (VICT), B A (VICTORIA)
PHD (MCGILL)
CPA
ASSOCIATE PROFESSOR PSYCHOLOGY
PSYCHOLOGY DEPT, STEWART BIOL SC BLDG
4396 MAYFAIR AVE, MONTREAL 262 QUE 484-2620

CORBIN, MERCIA A, MISS 392-5366
ENGIN LIBRARY, MACDONALD ENG BLDG
3464 HUTCHISON ST, APT 605, MONTREAL 130 PQ
845-8346

COREY, MARGARET J, DR 769-9691
B A (U OF N B), PH D (MCGILL), MS (U OF MAINE)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
MONTREAL CHILDREN S HOSP, DOUGLAS MEM HOSPITAL
121 IRVINE AVE, WESTMOUNT, QUEBEC

CORMIER, BRUNO M, DR 392-4586
BA (MONTREAL UNIVERSITY), P C B (MONTR),
DIP PSCTY (MCGILL UNIVERSITY)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, 509 PINE AVE W
5088 COTE ST ANTOINE, MONTREAL 260 QUE 489-4701

CORNEAU, RAYMOND, MR 932-5912
PHYSICS DEPT, MACDONALD PHYSICS BLDG
3455 DUROCHER ST, APT 811, MONTREAL QUE
843-7797

CORNELL, JOANNE E, MISS 392-5921
RESERVES, MCLENNAN LIBRARY
2200 CLAREMONT AVE, APT 309, WESTMOUNT 489-5227

CORNISH, RICHARD JOHN, MR 453-6580
DUPLICATING SERVICE, MACDONALD COLLEGE 800, QUE
86 ST ANDREW AVE, BEACONSFIELD QUE 697-6038

CORSILLO, ANSELMO, MR 392-8057
DEPT OF EPIDEM & HEALTH, NEW PATHOLOGY BLDG
9578A ST HUBERT, MONTREAL QUE

CORSON, JOHN A, PROF 181-1627
BA (MAINE), MA (VERMONT), PHD (MCGILL)
ASSOCIATE PROFESSOR PSYCHOLOGY
RESEARCH ASSISTANT DEPARTMENT OF PSYCHIATRY
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHOLOGY, A M I
566 CHELSEA CRES, BEACONSFIELD PQ 695-5148

COSGROVE, JAMES B R, DR
MD (MANITOBA), MSC (MANITOBA)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
M.N.H. STAFF LABORATORY-ELECTROPHORESIS
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
455 BARTON AVE, TOWN OF MOUNT ROYAL QUE

COSSETTE, GILLES JM, DR 842-1251
C S P Q, C S R C
B A (LAVAL), M D (LAVAL)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
FACULTY OF MEDICINE, 3801 UNIVERSITY ST,
MONTREAL 112 P Q
11890 BLVD DE L ACADIE, MONTREAL 356 QUE
331-9167

COSTAIN, MARINA METJE, MRS 453-6580
EXTENSION DEPT, MACDONALD COLLEGE 800, QUE
5 GRIER ST APT 3, STE ANNE DE BELLEVUE PQ
453-3652

COSTLEY, CHARLES G, PROF 392-5956
B A (FISK), M SC (ILL), PH D (ILL)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
1120 PARNASSE ST, VILLE BROSSARD QUE 672-5680

COTE, MADELEINE, MISS
QAMT
MICROBIOLOGY ▮ IMMUNOLOG
211 BLVD ST JOSEPH, MONTREAL 152 QUE 272-6620

COUGHLIN, VIOLET L, PROF 392-5943
BSC (MCGILL), B L S (MCG), M A (COL)
DLS (COLUMBIA UNIVERSITY)
Q L A
PROFESSOR GRAD SCHOOL OF LIBRARY SCIENCE
GRAD SCHOOL OF LIBRARY S, MCLENNAN LIBRARY
3800 WILSON AVE, MONTREAL 28 QUE 484-9965

COUTURE, J P, DR
B A (STE MARIE), P C B (MONTR)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GEN HOSP
2712 COTE STE CATHERINE, MONTREAL QUE

COUTURE, MAY, MRS. 453-6580

AGRONOMY, MACDONALD COLLEGE 800, QUE
9 KIRKLAND BLVD, KIRKLAND QUE 697-2548

COVO, PETER V, PROF 392-4673
B ENG MECH (MCGILL)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
69 KIRKWOOD AVE, BEACONSFIELD QUE 697-2723

COWAN, SUSAN ELLEN, MRS 392-8031
B A (MCGILL)
INSTR COMMUNICATIONS CTR, RM 304,
MACDONALD CHEM BLDG
1212 PINE AVE W, APT 1709, MONTREAL QUE

COWAN, T A, DR
BA (BRITISH COLUMBIA), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
81 CORNWALL AVE, MONTREAL QUE

COWANS, ANDREA, MISS 392-5479
PERSONNEL DEPARTMENT, ADMINISTRATION BLDG, ROOM 418
4355 MARCIL AVE, MONTREAL 260 QUEBEC 484-5853

COX, RAYMOND G, PROF 392-5971
B A (CANTAB), PH D (CANTAB)
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
3466 AYLMER ST APT 410, MONTREAL 130 QUE

CRAFTON, ALAN HOWARD, MR 392-5119
B A (SIR GEORGE WILLIAMS)
VOCATIONAL GUIDANCE CENT, 522 PINE AVE WEST
5761 HONORE DE BALZAC, APT 114, COTE ST LUC QUE 489-2507

CRAIGWELL, RONALD, MR
DEMONSTRATOR BIOLOGY
BIOLOGY
6000 29TH AVE, APT 24, ROSEMOUNT 409 QUE

CRAM, JOHN MURRAY, PROF 392-8880
BA (ALBERTA), B ED (ALBERTA), M ED (U N B)
EDD (BRITISH COLUMBIA)
CCOPQ
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN,DEPT OF COUNSELLOR ED
FACULTY OF EDUCATION, 3700 MCTAVISH ST
27 PROSPECT ST, WESTMOUNT QUE 932-1962

CRAWFORD, JOHN E, PROF 392-5365
BA (TORONTO), M A (TOR), PHD (MCGILL)
C A P
ASSOCIATE PROFESSOR PHYSICS
RADIATION, FOSTER RADIATION LAB
116 BRIGADOON DRIVE, POINTE CLAIRE QUE 697-6531

CRAWHALL, JOHN C, DR 181-340
BSC (LONDON ENGLAND), PH D (LONDON UNIV),
M B S (LONDON UNIV), PHD (LONDON ENGLAND)
DIRECTOR UNIVERSITY CLINIC R V H
CLINICAL BIOCHEM, R V H, 687 PINE AVE W
218 SIMCOE AVE, TOWN OF MOUNT ROYAL QUE 342-0219

CREAGHAN, DOROTHY ANN, PROF 392-8846
B A (MARYMOUNT), B ED (MTL), M A (COLUMBIA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
2 WESTMOUNT SQUARE, APT 902, MONTREAL QUE

CREMONA, ISIDA, MRS
B A (MCGILL), DOC EN L (TOURS)
LECTURER FRENCH
PETERSON HALL
4835 MADISON AVE, MONTREAL QUE 484-5775

CREPEAU, PAUL A, PROF 392-5372
BA (OTTAWA), L LL (MONTR), B C L (OXON)
DOCTORATE (PARIS)
PROFESSOR FACULTY OF LAW
LAW DEPT, C D H
5 PLACE SPRINGVALE, MONTREAL 153 QUE 272-5941

CRESSEY, HOWARD C, MR 392-4372
DEPT, 840 MCGREGOR
3660 PEEL ST, APT 8, MONTREAL QUE

CREVIER, ELIZABETH, MRS 453-6580
HOUSEHOLD SCIENCES, MACDONALD COLLEGE 800, QUE
95 SENNEVILLE RD, SENNEVILLE QUE 453-6152

CROFT, WILLIAM D, MR 392-4963
BASC (TORONTO)
DIRECTOR OF INDUSTRIAL RESEARCH
OFFICE OF IND RSRCH, DAWSON HALL
250 53RD AVE, LACHINE QUE 634-3744

CRONIN, R F PATRICK, DR 392-4236
MD CM (MCGILL), MSC (MCGILL)
M R C P (LOND), F R C P (C)
DEAN FACULTY OF MEDICINE
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
FACULTY OF MEDICINE, MCINTYRE BUILDING
762 LANSDOWNE AVE, MONTREAL QUE

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B A (QUEENS), B L S (MCG)
QLA
DIRECTR OF LIBRARIES SABBATICAL REPLACEMENT
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ADMINISTRATION, MCLENNAN LIBRARY
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CRUESS, RICHARD L, DR
MD (PRINCETON), MD (COLUMBIA)
PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, ROYAL VICTORIA HOSPITAL,
PINE AVENUE MONTREAL
526 MOUNT PLEASANT AVE, MONTREAL 6 QUE

CRUESS, SYLVIA, DR 842-1251
B A (VASSAR COLLEGE), M D (COLUMBIA)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, R V H
526 MOUNT PLEASANT AVE, WESTMOUNT QUE 842-1251

CSORGO, MIKLOS, PROF 392-8281
BA (BUDAPEST), M A (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR MATHEMATICS
BURNSIDE HALL
625 MILTON ST, APT 1204, MONTREAL 130 QUE

CULBREATH, EDWARD, PROF 392-4558
B SCI (MANNES COLL OF MUSI), M M (YALE UNIV)
ASSISTANT PROFESSOR FACULTY OF MUSIC
FACULTY OF MUSIC, 555 SHERBROOKE ST, W.
4915 DE MAISONNEUVE BLVD, MONTREAL 215 QUE 484-1448

CULLEY, ROBERT CHARLES, PROF 392-4829
BA (TORONTO), BD (TORONTO), M A (TORONTO)
PHD (TORONTO)
ASSOCIATE PROFESSOR FAC OF RELIGIOUS STUDIES
DIVINITY HALL
167 SUNNYSIDE AVE, POINTE CLAIRE QUEBEC 695-9736

CUMBERLAND, JUNE ROSAMOND, DR 937-8511
BA (HON) (TORONTO), M D C M (MCG),
DIP PSYCH (MCGILL)
CPSQ
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
MONTREAL CHILD HOSP, 2300 TUPPER ST
2300 TUPPER ST, MONTREAL 108 QUE 937-8511

CUMMINGS, N EILEEN, MISS
B A (SIR GEORGE WILLIAMS), M A (NORTHWESTERN)
M C H LEARNING CENTER, 3640 MOUNTAIN ST
5765 COTE ST LUC RD, APT 207, MONTREAL 254 QUE

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MB (GALWAY UNIV)

DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
MONTREAL CHILDREN S HOSP
5662 QUEEN MARY ROAD, MONTREAL 254 QUE 937-8511

CYNBERG, DAVID, DR 392-5447
MDCM (MCGILL)
HEALTH SERVICE-MCGILL, 517 PINE AVE WEST
5801 COTE ST LUC RD, APT 5 MONTREAL 254 QUE

D ABADIE, F A, DR
B A (CALIF)
F R C P (C)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
3250 FOREST HILL AVE, APT 704, MONTREAL QUE

D AMOURS, LOUISE ALMA, MISS 392-4706
DEPARTMENT OF PSYCHIATRY, 509 PINE W
5562 AVE DECELLES, APT 7 MONTREAL 250 QUE

D ANGLEJAN, BRUNO, PROF 392-5717
BSC (MCGILL), PHD (CALIFORNIA)
DIRECTOR MARINE SCIENCES CENTRE
ASSOCIATE PROFESSOR MARINE SCIENCE CENTRE
MARINE SCIENCES CTR, 772 SHERBROOKE ST W
716 UPPER ROSLYN, MONTREAL 6 QUE 489-7996

D ERAMO, DOMINICO, MR 392-5070
ASST SUPERVISOR BUILDING SERVICES
PHYSICAL PLANT, 840 MCGREGOR
9480 ST FIRMAN ST, MONTREAL 360 QUE 387-9862

D OMBRAIN, GEORGE, DEAN 392-5859
B SC (LONDON), DIPL (IMPERIAL COLL),
PHD (LONDON)
DIC, ACGI, FIEE, SMIEEE
FACULTY OF ENGINEERING, MACDONALD ENGR. BLDG
1550 MCGREGOR AVENUE, MONTREAL QUE 937-6494

DALFEN, BEN ZION, MR 392-8072
B ARTS (MCGILL U), M S W (MCGILL),
DIP S W (MCGILL)
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
52 THORNTON AVE, MONTREAL 304 QUE 735-1802

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DANCEY, TRAVIS EUGENE, DR
BA (MCGILL), MD (MCGILL)
L M C C, F A P A
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
4015 WILSON AVE, MONTREAL 260 QUE 484-5761

DANDURAND, FRANCINE, MS 392-4842
NON-ACADEMIC RANKS DEPT OF EPIDEM & HEALTH
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
5 PLACE BELLERIVE, APT 1107, CHOMEDEY LAVAL QUE
688-8202

DANDURAND, JOSEE, MISS 392-4778
MCCORD MUSEUM, NEW MCCORD BLDG,
690 SHERBROOKE ST W
3472 RUE VAN HORNE, MONTREAL 26 QUE

DANIEL, ANNA MARTA, DR 181-1721
DIPL ENG (TECHNICAL UNIVERSIT), PH D (MCGILL)
LECTURER MCGILL-R V H SURGERY CLINIC
SURGICAL LABS, R V H
631 LAZARD AVE, MONTREAL 305 QUE 482-7933

DANIELS, EUGENE, DR 392-4889
BSC (SOUTH AFRICA), MSC (MANITOBA),
PHD (MANITOBA)
LECTURER DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG
1212 PINE AVE W, APT 1501 A, MONTREAL 112 QUE

DANOVITCH, GERALD, MR
LECTURER FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
317 CLEMENT AVE, DORVAL QUE

DARRAGH, JAMES H, DR 392-4232
B SC (MCG), M D C M (MCG), M SC (MCG)
F R C P (C)
ASSOCIATE DEAN FACULTY OF MEDICINE
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, DEANS OFFICE, MCINTYRE MED BLDG
645 BELMONT AVE, MONTREAL 217 QUE 481-3881

DAS GUPTA, SUBAL, PROF 392-8077
M SC (CALCUTTA), DOCTORATE (MCMASTER)
ASSOCIATE PROFESSOR PHYSICS
OLD CHEMISTRY BLDG
5354 CONNAUGHT AVE, APT 3 MONTREAL 265 QUE
484-9670

DAUPHINEE, SHARON LEE, MRS 392-4320
BPT (MCGILL), B SC PT (MCGILL)
LECTURER PHYSICAL/OCCUPATIONAL THERAPY
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DAUPHINEE, W DALE, DR 181-720
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, R.V.H.
5590 BRADFORD PLACE, MONTREAL 252 PQ 737-9782

DAVANLOO, HABIB, DR
MD (TEHRAN-IRAN), DIP PSYCTY (MCGILL)
QMA, QPA
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
1650 CEDAR AVE, MONTREAL 109 QUE
111 HERMISTON AVENUE, POINTE CLAIRE 710 PQ
935-3433

DAVENPORT, WILLIAM G, PROF 392-5710
B A SC (U B C), M A SC (U B C), PH D (LOND)
ASSOCIATE PROFESSOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
371 DULWICH AVE, ST LAMBERT QUE 672-3438

DAVID, JEAN, PROF 453-6580
LSA (MONTREAL), PH D (CALIFORNIA)
CORP AGRON, QUE.
ASSOCIATE PROFESSOR DEPT OF HORTICULTURE
ASSOCIATE DEAN FACULTY OF AGRICULTURE
DEPT OF HORTICULTURE, MACDONALD COLLEGE QUE
91 BEDFORD RD, BAIE D URFE QUE 453-4739

DAVID, ROBERT JOHN C, DR
DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA MED BLDG
132 SURREY DRIVE, MONTREAL 305 QUE 735-0427

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BA (PARIS (MTL SESSION)), MSC (MCGILL),
MD (MONTREAL)
LMCC, FRCSC, FACP
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
6 HAZELWOOD, OUTREMONT 257 PQ 737-7545

DAVIS, DAVENA GWENDOLEN, MISS 392-5061
B A (S G W U), MLS (MCGILL)
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DAVIS, HEATHER, PROF 392-8851
CERT ED (BRISTOL), ADV DIP (CAMBRIDGE)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST,
MONTREAL QUE
200 DE GASPE APT 303, NUN S ISLAND,
MONTREAL 201 QUE 767-7556

DAVIS, PETER L, DR 842-1251
B SC (MT ALLISON), M D C M (MCGILL)
F R C S(C)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY, ROYAL VICTORIA HOSPITAL
1414 DRUMMOND ST, SUITE 322, MONTREAL 107 QUE
844-8845

DAVISON, DORIS M, MRS 453-6580
MACDONALD EXTEN DEPT, MACDONALD COLLEGE 800,
QUE
135 VANGUARD AVE, APT 54, POINTE CLAIRE 710 QUE

DAVISON, MARY CAROL, PROF 392-4995

A B (STANFORD CALIF), M A (YALE),
PH D (STANFORD CALIF)
ASSISTANT PROFESSOR ENGLISH
ARTS BLDG
3470 STANLEY ST, APT 1404, MONTREAL QUE
843-4883

DAWSON, ELIZABETH, MISS 392-4558
L MUS (MCGILL)
QMTA
LECTURER FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
4874 COTE DES NEIGES RD, MONTREAL QUE

DAWSON, KEITH G, DR 181-1801
BA (PRINCETON), PH D (MCGILL), MD (COLUMBIA)
F R C P, F A C P
ASSISTANT PROFESSOR RESIDENCY PROGRAMME
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLINIC, 2 MED, R V H
4342 WESTMOUNT AVE, MONTREAL 6 QUE 489-9002

DAYTON, MARGARET, MRS 392-5983
B A (U B C)
REGISTRAR S OFFICE, ADMINISTRATION BLDG
672 GROSVENOR AVE, MONTREAL QUE

DE BENEDETTI, JOHN, MR 392-5023
SR PROGRAMMER MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
102 VIGNORY BLVD, VILLE DE LORRAINE,
CONTE TERREBONNE QUE 625-3755

DE CHAMPLAIN, MARIE L B, DR 342-3111
AB 1956 (U OF PARIS), MD (U OF MTL)
APPQ, ANPQ
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY
9 HAZELWOOD, OUTREMONT QUE 735-3274

DE DOMENICO, IVAN J., MR 937-6492
FRCSC
B PHARMACY (ROYAL UNIV MALTA),
MD (ROYAL UNIVERSITY)
F R C S (C), F A C S
LECTURER DEPARTMENT OF SURGERY
SURG MTL CHLD HOSP, 2300 TUPPER ST
327 DORVAL AVE SUITE 16, DORVAL QUE 636-1696

DE GOUVILLE, ARNAUD, MR
SPECIAL LECTURER DEPT OF CIVIL ENG
CIVIL ENG & APPLIED MECH, MACDONALD ENGINEERING
3433 DUROCHER ST, APT 507, MONTREAL QUE

DE GRAVINA, THELMA G, MRS 392-4734
FACULTY OF EDUCATION, 3700 MCTAVISH ST
3453 PEEL ST, APT 11, MONTREAL QUE

DE LANGLEY, EVELYN H, MRS 392-4777
ARCHIVIST MCCORD MUSEUM
PLEASANT VALLEY, RTE S2,
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BAC APP SC (SASKATCHEWAN), M ENG (MCGILL)
M E I C, M A C I, P ENG
PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
865 48TH AVE, LACHINE QUE 637-0353

DE TAKACSY, NICHOLAS, DR 392-8044
B SC (LOYOLA), M SC (U OF M), PH D (MCGILL)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, MACDONALD CHEM BLDG
5260 LOUISBOURG ST, MONTREAL QUE

DE VOE, IRVING W, PROF 453-6580
BSC (AURORA COLLEGE),
PHD (UNIV OREGON MED SCH)
ASSISTANT PROFESSOR DEPT OF MICROBIOLOGY
MICROBIOLOGY DEPT, MACDONALD COL,
ST ANNE DE BELLEVUE QUE
118 RUE LIPPEE, COTEAU STATION QUE 267-9316

DE VRIES, JOAN A, DR 392-8071
BA (DALHOUSIE), MD (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
DENTISTRY, STRATHCONA MED
234 BALLANTYNE N, MONTREAL WEST QUE 481-4904

DEALY, JOHN MICHAEL, PROF 392-5442
B S CH E (UNIV OF KANSAS), M S E (MICH),
PH D (UNIV OF MICHIGAN)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
355 GROSVENOR, MONTREAL 215 QUE 937-5037

DEARDEN, CHRISTOPHER W, PROF 392-5226
BA HONS (SHEFFIELD), PHD (LONDON)
ASSISTANT PROFESSOR CLASSICS
CLASSICS DEPT, STEPHEN LEACOCK BLDG
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DEBBANE, ELIE GEORGE, DR
PCB (ST JOSEPH), MD (ST JOSEPH)
DIPL PSYCHIATRY, MRC
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
4503 ROYAL AVENUE, MONTREAL 261 QUE 181-630

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B A (PARIS), M A (LAVAL)
ASSISTANT PROFESSOR HISTORY
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570 MILTON ST, MONTREAL 130 PQ

DEDIC, GEORGE, MR 392-5461
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
5785 COTE DES NEIGES RD, APT 306,
MONTREAL 249 QUE 737-8347

DEEHY, PATRICK, PROF 392-5042
BA (DURHAM), M S W (MCG), MA (PRINCETON)
PHD (PRINCETON)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
128 MACAULAY AVE, ST LAMBERT QUE 672-6491

DELEEUW, NANNIE K M, DR 181-1636
MD (LEIDEN)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
201 COROT RIVE, MONTREAL 201 QUE 761-2152

DELLA PERGOLA, EDITH, MRS 392-5864
DIP (CONS MASSINI BUCAREST)
LECTURER FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
1100 MCGREGOR, APT 505, MONTREAL 112 QUE

DELLA PERGOLA, LUCIANO, PROF 392-5864
DIP CONSERVAT (BUCAREST)
ASSISTANT PROFESSOR FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
1100 MCGREGOR, APT 505, MONTREAL 112 QUE

DEMERS, ROBERT, MR 842-1251
B SC (APP) (LAVAL), B A (LAVAL), M ENG (MCGILL)
CIQ IEEE CMBES
LECTURER MCGILL-R V H SURGERY CLINIC
LECTURER FACULTY OF MEDICINE
SURGICAL CLINIC, ROYAL VICTORIA HOSPITAL
123 DE FLANDRE, ST LAMBERT CHAMBLY QUE 671-5208

DENHARDT, DAVID TILTON, PROF 392-4249
BA (SWARTHMORE COLLEGE), PHD (CAL INST TECH)
ASSOCIATE PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY, MCINTYRE
4338 WESTHILL AVE, MONTREAL 260 QUE 481-6640

DENISON, MARJORIE A, MISS
PSYCHIATRY DEPT, A M I
3411 NORTHCLIFFE AVE, APT 86 MONTREAL 28 QUE

DENTON, RONALD L, DR
BSC (MCGILL), MD (MCGILL)
F R C P (C)
PROFESSOR DEPT OF PEDIATRICS

2300 TUPPER, MONTREAL 108 QUE
623 BELMONT AVE, WESTMOUNT QUE 937-8511

DEPPISCH, JEAN, MRS 392-5854
FAC. OF MANAGEMENT, BRONFMAN BLDG
39 ROCKWOOD DR, DOLLARD DES ORMEAUX QUE

DERBY, ANGUS C, DR
B SC (MCGILL), MD CM (MCGILL)
FRCS (C), FACS
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY QUEEN ELIZ HOSP, 2100 MARLOWE AVE, MONTREAL 260 QUE
68 BROCK AVE N, MONTREAL QUE 488-2311

DEROME, JACQUES F, DR 392-4462
B SC HON MET (MCGILL), PH D (U OF MICHIGAN),
M SC (MCGIL)
ASSOCIATE PROFESSOR METEOROLOGY
DEPT OF METEOROLOGY, BURNSIDE HALL
603A HAVRE DES ILES, LAVAL P Q

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1100 MCGREGOR ST, APT 1002, MONTREAL 112 QUE 845-4731

DESJARDINS, PAUL D, DR 181-278
BA (ANDRE GRASSET), BSC (MONTREAL), MD (MONTREAL), MSC (MCGILL)
F R C S C, F A C S, F A C O G
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
DEPT OF OBSTETRICS & GYN, WOMEN S PAVILION, R V H
11838 DE MEULLES, MONTREAL 390 QUE 842-2311

DESPAS, PAUL J, DR
MBBS (SYDNEY)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED RESPIRATORY DIV RVH
4560 HARVARD AVE, MONTREAL PQ

DESROCHES, FRANCOISE, MRS 392-4591
FRENCH LANG & LIT, PETERSON HALL
4961 DORNAL STREET, MONTREAL 248 QUEBEC 731-9934

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SCHOOL OF LIBRARY SC, MCLENNAN LIBRARY
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DEUTSCH, ANTAL, PROF 392-5232
B COM (SIR GEO WILLIAMS), PHD (MCGILL)
3660 PEEL ST, MONTREAL QUE
3660 PEEL ST, MONTREAL QUE

DEVEAULT, GARIEL, MR 392-5417
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
4583 PARTHENAIS ST, MONTREAL QUE 523-3771

DI GIROLAMO, COSTANZO, DR 392-4569
DIPLOMA (NAPOLI), DOCTORATE (NAPOLI)
LECTURER ITALIAN
1001 SHERBROOKE ST W
1212 PINE AVE WEST, APT 1505A, MONTREAL 112

DI STEFANO, GIUSEPPE, PROF 392-4674
LAUREA (UNIVERSITY OF TURIN),
DIP EPHE (SORBONNE), DOCTORATE (SORBONNE)
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG & LIT, PETERSON HALL
3644 ONTARIO AVENUE, APT 62, MONTREAL 130 QUE

DIAS, PATRICK X, PROF 392-8847
BA (KARACHI), B ED (U DE M), MA (KARACHI)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FAC OF EDUCATION, 3700 MCTAVISH
518 MONTFORD DR, DOLLARD DES ORMEAUX 970, QUE 626-3605

DIAZ, GERARD A, MR
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DICKISON, JOHN C, DR
B A (MCGILL), MD CM (MCGILL)
FRCS (C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
MONTREAL GEN HOSP, 1650 CEDAR AVE
12 STRATHFORD RD, MONTREAL QUE

DIEDRICH, GOETZ, MR 392-5460
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
1520 OUIMET ST APT 30, ST LAURENT QUE 747-3872

DIETRICH, DAVID E, PROF 392-4462
B S (NORTH CENTRAL), PH D (FLORIDA STATE)
ASSISTANT PROFESSOR METEOROLOGY
BURNSIDE HALL
200 DE GASPE APT 1103, MONTREAL 201 QUEBEC 392-4462

DIEZ GARCIA, PABLO, DR 769-9691
M D (VALLADOLID), M SC (UN OF VALLADOLID),
DIP CRIMINOLOGY (MADRID), D PSYCH (MCGILL)
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
DOUGLAS HOSPITAL, 6875 LASALLE BLVD, VERDUN QUE
3421 DRUMMOND, SUITE 45, MONTREAL 109 QUE 873-2118

DIGBY, PETER S B, PROF 392-5976
BA (CAMBRIDGE), D SC (LONDON)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
52 LAKEVIEW BLVD, BEACONSFIELD QUE

DIGIOVANNI, GEORGE, PROF 392-5154
B A (U OF T), M A (U OF T),
S T B (ST MICHAEL S), PH D (U OF T)
ASSISTANT PROFESSOR PHILOSOPHY
772 SHERBROOKE ST.W.
3465 RIDGEWOOD AVE, APT 102, MONTREAL 247 QUE

DILA, CARL J, DR 288-4705
A B (U MICH), MD (WAYNE ST U), M SC (MCGILL)
DIP NEUROSURGERY (MCGILL)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, M N I
613 ROSLYN AVE, WESTMOUNT QUE 481-2053

DIMASSIMO, MARIA, MRS 392-5318
BUDGET OFFICE, ADMINISTRATION
7960 LOUIS HEBERT AVE, MONTREAL 329 QUE 725-5387

DION, WENDY, DR 181-277
BSC (LONDON), PHD (LONDON)
LECTURER DEPT MICROBIOLOGY - IMMUNOLOGY
PATH INST
21048 LAKESHORE ROAD, STE ANNE DE BELLEVUE QUE.

DIRKS, FAY I, MRS 181-1729
MD (U OF W ONT)
F R C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, ROYAL VICTORIA HOSP
962 DUNSMUIR ROAD, MONTREAL 305 QUE

DIRKS, JOHN H, DR 181-1717
MD (MANITOBA)
F R C P
PROFESSOR UNIVERSITY CLINIC R V H
ASSOCIATE PROFESSOR DEPARTMENT OF PHYSIOLOGY
DEPARTMENT OF PHYSIOLOGY, MACINTYRE BLDG
962 DUNSMUIR ROAD, MONTREAL 305 QUE 733-6526

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MLS (MCGILL)
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ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, MTL C HOS 2300 TUPPER
MONTREAL 108 P QUE
29 BELLEVUE AVE, WESTMOUNT QUE 937-8036

DISTIN, PHILIP A, DR 392-5706
B SC (IMP COL), PH D (IMP COLL)
ASSISTANT PROFESSOR DEPT OF METALLURGICAL ENG

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M ENG (MINING) (MCGILL)
P ENG (MANITOBA) M C I M
ASSISTANT PROFESSOR DEPT OF MINING ENGINEERING
MINING ENGINEERING, MCCONNELL ENG BLDG
510 31 ST AVENUE APT 33, LASALLE 680 PQ
363-3589

DOBELL, ANTHONY R C, DR 842-1251
BSC (MCGILL), MD (MCGILL)
PROFESSOR MCGILL-R V H SURGERY CLINIC
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PROFESSOR RESIDENCY PROGRAMME
SURGERY DEPT, ROYAL VICTORIA HOSP
3495 HOLTON AVENUE, MONTREAL 108 PQ

DOBELL, ISABEL, MRS 392-4768
B A (MCGILL)
CURATOR MCCORD MUSEUM
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DODDS, JAMES R, DR 842-1251
B SC (UNB), MD CM (MCG)
F R C P C
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTET & GYN, R V H
1414 DRUMMOND ST, MONTREAL QUE

DOEHRING, DONALD G, PROF 392-5985
BA (BUFFALO), M A (NEW MEX), PHD (INDIANA)
PROFESSOR DEPT OF OTOLARYNGOLOGY
PROFESSOR PSYCHOLOGY
HUMAN COMMUN DISORDERS, BEATTY HALL
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SESSIONAL LECTURER SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
3528 ADDINGTON ST, MONTREAL 260 QUE 484-9035

DOIG, RONALD, PROF 392-5734
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
20793 LAKESHORE RD, BAIE D URFE QUE 453-4472

DOLAN, MARY ELIZABETH, MRS 392-4792
B A (U N B), M L S (MCG)
ASSISTANT PROFESSOR
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B SC (LOYOLA), MDCM (MCGILL)
ASST PROF DEPT OF MEDICINE & CLIN MED
RESPIRATORY 4 MED RVH
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BA (UNIV OF CHICAGO), B S (CHI),
PH D (CORNELL)
ASSOCIATE PROFESSOR PSYCHOLOGY
PSYCHOLOGY DEPT, STEWART BIOL BLDG
4030 BEACONSFIELD AVE, MONTREAL 261 QUE
486-3631

DONGIER-MONTAGNAC, SUZANNE, DR 937-8511
M D (AIX-MARSEILLE FRANCE)
ASST PROF DEPARTMENT OF PSYCHIATRY
PSYCHIATRY MCH, 2300 TUPPER ST
3036 ST SULPICE ST, MONTREAL 109 QUE 937-7905

DONGIER, MAURICE, DR 842-1251
DIRECTOR ALLAN MEM INST
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PSYCHIATRY, A M I
3036 ST SULPICE RD, MONTREAL QUE 937-7905

DONNAY, GABRIELLE, PROF 392-5840
B A (UCLA), PH D (MASS INST OF TECH)
PROFESSOR GEOLOGICAL SCIENCES
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BA (SHERBROOKE), PH D (CITY UNIVERSITY N Y)
ASSISTANT PROFESSOR ENGLISH
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PH D (U OF MICHIGAN)
PROFESSOR PSYCHOLOGY
STEWART BIOL BLDG
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DOUGLAS, W J MURRAY, PROF 392-5436
B SC (QUEENS), M S E (MICH), PH D (MICH)
PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
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M ED (MCGILL), MA (MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH
1872 MAYFIELD ST, CHOMEDEY LAVAL QUE

DOWSLEY, DONNA LEE, MS 453-6580
PLANT PATHOLOGY, MACDONALD COLLEGE, 800 P QUE
69 6TH AVENUE, PINCOURT QUE 453-6968

DOYLE, GUY, DR
BA (MONTREAL), MD (MONTREAL)
LECTURER THERAPEUTIC RADIOLOGY
R V H
12225 RUE ST EVARISTE, MONTREAL 390 QUE

DOYLE, JOSEPHINE M, PROF 392-5029
B NURSING (MCGILL).

MASTER ED (TEACHERS C COLUMBIA)
R N
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
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PQAA
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
4373 MONTROSE AVE, MONTREAL 6 QUE 937-1019

DRUMMOND, KEITH, DR 937-8511
BA (MCGILL), MDCM (MCGILL)
F R C P(C)
PROFESSOR DEPT OF PEDIATRICS
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER ST,
MONTREAL 108 QUE
240 PERCIVAL AVE, MONTREAL WEST QUE 489-7064

DRUMMOND, R N, PROF 392-5497
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
109 DE BRESLAY AVE, POINTE CLAIRE QUE 697-0341

DRURY, STEPHEN W, PROF
B A (CAMBRIDGE), PH D (CAMBRIDGE)
ASSISTANT PROFESSOR MATHEMATICS
BURNSIDE HALL
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MONTREAL QUE

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DINING DEPT, MACDONALD COLLEGE QUE
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DUBE, MADELEINE, MRS 392-8203
FAC. OF MANAGEMENT, BRONFMAN BLDG
4382 MELROSE AVENUE, NDG MONTREAL QUEBEC 487-4297

DUBEAU, ROBERT, MR 392-4754
BA (S G W U), B P E (MCMASTER)
CHAIRMAN INT PROG PHYSICAL EDUCATION
PHYSICAL EDUCATION, GYMNASIUM
4804 COTE DES NEIGES, MONTREAL QUE 738-7061

DUBIK, JOSEF, MR 392-5462
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BSC (MCGILL)
DEMONSTRATOR GEOGRAPHY
BURNSIDE HALL
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DUBROVSKY, BERNARDO OSCAR, DR 181-1714
MD (BUENOS AIRES)
DIRECTOR OF NEUROPHYSIOLOGICAL LAB
A M I
DEPARTMENT OF PSYCHIATRY, A M I
3445 DRUMMOND, APT 704, MONTREAL QUE

DUBRULE, GERALDINE, MISS 392-4544
BSCPE (MCGILL), MA (MICHIGAN ANN ARBOR)
ATHLETICS, R V C, 555 SHERBROOKE W
3610 MCTAVISH ST, APT 22 MONTREAL 112 QUE 845-7518

DUCHARME, JACQUES R, DR
B A (U OF M), M SC (PENNSYLVANIA), M D (U OF M)
C S P Q
LECTURER UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, HOPITAL STE JUSTINE
505 STUART ST, MONTREAL 153 QUE

DUCHOW, MARVIN, PROF 392-4526
MUS DOC
MUS BAC (MCGILL), B A (N Y U), M A (ROCHESTER)
PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
7910 WESTBROOK RD, MONTREAL 268 QUE 488-1095

DUCIC, SLOBODAN, MR 392-4745
MED DOCTOR (UNIV OF BELGRAD),
DIP EPIDEMIOLOGY (BELGRADE),
MASTER SCI (BELGRADE)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
UNIVERSITY CLINIC R V H,
MED MEAKINS CHRISTIE LAB
3615 RIDGEWOOD AVE, APT 408, MONTREAL 247 QUE

DUDEK, L, PROF 392-5001
BA (MCGILL), AM (COLUMBIA), PHD (COLUMBIA)
PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BUILDING
3476 VENDOME AVE, MONTREAL QUE

DUDER, SYDNEY, MRS 935-5040
B SC (MCGILL), M S W (MCGILL)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY
9 SEVERN AVE, MONTREAL 217 QUE 937-0054

DUER, LESLIE, PROF 392-4299
BA (JOHNS HOPKINS UNIV),
PHD (UNIV COLLEGE DUBLIN)
ASSISTANT PROFESSOR ENGLISH
ARTS BLDG
1575 SUMMERHILL AVE, APT 606, MONTREAL 109 QUE

DUFAULT, CAMILLE, DR
B A (ST HYACINTHE), M D (MONTR)
C S P Q, F R C P (C)
LECTURER UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, HOPITAL ST LUC
ST LUC HOSPITAL, MONTREAL QUE

DUFF, JAMES ALISTAIR, PROF 392-4934
BA (QUEENS COLL), MA (QUEENS COLL)
C A
ASSOCIATE DIRECTOR CONT ED-ACCT SECTION
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CONT ED-ACCT SECTION, 772 SHERBROOKE ST W
14373 SHAW ST, PIERREFONDS QUE 626-7895

DUFRESNE, LOUIS RAYMOND, DR
BA (COLLEGE ST VIATEUR), MD (UNIV OF MONTREAL)
F R C P (C)
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
MED & CL MED M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
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DUMAS, FRANCOIS, MR

ASSISTANT DIRECTOR OF DOUGLAS HALL
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3851 UNIVERSITY STREET, MONTREAL 112 QUEBEC

DUMAS, JEAN-MARC, DR 842-1251
B A (LAVAL), M D (LAVAL)
F R C P(C)
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DUMONT, FLORENT R, DR 392-8884
A B (COLUMBIA), M SC (SO CT COLL),
ED D (U MASS)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
515 LAKESHORE ROAD, BEACONSFIELD 870 QUEBEC

DUMONT, JACQUES, DR 842-1251
M D (LAVAL), B A (LAVAL)
L M C C, F R C S(C)
LECTURER DEPT OF EXPERIMENTAL SURGERY
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FAC OF GRAD STUD & RES, DAWSON HALL
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LAVAL PQ 667-3881

DUNBAR, MAXWELL J, DR 392-5714
BA (OXFORD), M A (OXON), PH D (MCGILL)
F R S C
PROFESSOR MARINE SCIENCE CENTRE
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DUNBAR, NANCY J, MRS 392-4719
B SC (SIDMORE N Y), MA (DELAWARE)
CURATOR MCCORD MUSEUM
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OPHTHALMOLOGY, R V H
1538 SHERBROOKE ST W, MONTREAL QUE 932-5514

DUNCAN, RUTH, PROF 392-8895
BA (MANITOBA), MA (MINNESOTA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
520 GASPE ST, APT 604, MONTREAL 201 QUE

DUNDASS, ROBERTA, DR
DDS (MCGILL), MS DENTIST (UNIV OF MICHIGAN)
LECTURER FACULTY OF DENTISTRY
4545 SHERBROOKE, MONTREAL QUE
4545 SHERBROOKE ST W, MONTREAL 215 QUE

DUNKLEY, E MALCOLM, DR 937-6011
MB BCH (WALES)
F R C P (C), F A C A, D A B A
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, MONTREAL GEN HOSP
536 ARGYLE AVE, WESTMOUNT 217 QUE

DUNN, GEOFFREY L, DR 937-8511
M B B S (LONDON)
L R C P, M R C S, F F A R C S
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA M C H, 2300 TUPPER,
MONTREAL 108 QUE
240 SOMERVALE GARDENS, APT 4 POINTE CLAIRE 720,
QUEBEC 937-8511

DUNNE, THOMAS, PROF 392-8245
B A (CAMBRIDGE ENGLAND), PH D (JOHNS HOPKINS)
ASSISTANT PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
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DUPONT, CLAIRE H, DR 937-8511
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DUPRE, JOHN, DR 181-1828
BA (OXFORD), M A (OXFORD), BSC (OXFORD)
MRCP
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC, FRASER LAB 10 MED, R V H
111 ELM CRESCENT DRIVE, MONTREAL QUE 453-5839

DUQUETTE, JEAN PIERRE, PROF 392-4440
BA (OF MONTREAL) LIC LET (U MTL),
CAPES (U MTL), DOCTORATE (U OF PARIS)
ASSISTANT PROFESSOR FRENCH
FRENCH LANG & LIT, 3491 PEEL ST
3421 DRUMMOND ST, APT 74, MONTREAL 109 QUE

DURNFORD, JOHN W, DEAN 392-5120
BA (MCGILL), BCL (MCGILL)
CBA, AQLT, ACLT
DEAN OF FACULTY OF LAW
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EADE, NORMAN R, DR 937-8511
BSC (SASKATCHEWAN), M SC (SASK), PH D (OXON)
DPHIL (OXFORD)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
ASSOCIATE PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PEDIATRICS MTL CHILD HOS, 2300 TUPPER ST,
MONTREAL 108 QUE
3547 DUROCHER ST, APT 15 MONTREAL QUE 845-5495

EAKINS, PETER R, PROF 392-5796
BSC (MCGILL), M SC (MCG), DOCTORATE (MCGILL)
ASSOCIATE PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
34 DOBIE AVE, TOWN OF MOUNT ROYAL QUE 342-9142

EBERTS, CYNTHIA, MRS 392-4763
MUSEUM ASSIST MCCORD MUSEUM
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1509 SHERBROOKE W, APT 73 MONTREAL 109 QUE

EDGELL, PETER G, DR 933-0994
B A (BISHOPS), M D C M (MCG),
DIP INT MED (MCGILL)
CQCPS
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
REDDY MEMORIAL HOSP, 4039 TUPPER ST,
MONTREAL QUE
20301 LAKESHORE DRIVE, BAIE D URFE PQ 933-2225

EDWARDS, REGINALD, MR 392-8803
BSC (HONS) (LONDON), MED (MANCHESTER)
PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
28 BEACON CIRCLE, KIRKLAND 950 QUE

EDWARDS, RONALD, MR
LECTURER DEPT OF MECHANICAL ENGINEERING
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EHRENSAFT, PHILIP, PROF 392-4752
B A (OBERLIN), PH D (COLUMBIA)
ASSISTANT PROFESSOR SOCIOLOGY
SOCIOLOGY, LEACOCK BLDG
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EHRMANN, HENRY W, DR 392-5247
M A (DARTMOUTH)
LL B (FREIBURG GER), J D (FREIBURG GER)
PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK
3660 PEEL ST, APT 14, MONTREAL QUE 843-7036

EIDINGER, STANLEY L, DR
B A (MCGILL), MD CM (MCG)
F C C P
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
3550 COTE DES NEIGES RD, MONTREAL 109 QUE

EISEN, ANDREW A, DR 181-1853
MD (LEEDS ENGLAND)
M R C S (L), FRCP(C)
ASSISTANT PROFESSOR LABORATORY-E E G
KILLAM SCHOLAR NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, M N I
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EISENBERG, ADI, PROF 392-4444
B S (WORCESTER POLYTECH), MA (PRINC),
PHD (PRINCETON)
ASSOCIATE PROFESSOR CHEMISTRY
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B A (SIR GEORGE WILLIAMS)
MIDDLE MANAGEMENT 2 SOCIOLOGY
STEPHEN LEACOCK BLDG
1212 PINE AVE W, MONTREAL 112 QUE 844-4560

ELIE, KATHRYN D, DR
M D (LAUSANNE)
QACP
ASSISTANT PROFESSOR MICROBIOLOGY ▮ IMMUNOLOGY
3775 UNIVERSITY ST
5981 NOTRE DAME DE GRACE, MONTREAL 261 QUE 487-3571

ELLIOTT, ANGUS DOUGLAS, MR 392-4382
M M
B ENG (MCG)
CPEQ
DIRECTOR OF PHYSICAL PLANT
PHYSICAL PLANT, 840 MCGREGOR ST
COMO QUE 236-4062

ELLIOTT, LORRIS T, PROF 392-4993
B A (U B C)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
1420 TOWERS STREET, MONTREAL 108 QUE 935-8754

ELLIS, BARBARA, MISS
UNIV HEALTH SERVICE, 517 PINE AVE W
1690 PARKFIELD AVE, DORVAL QUE

ELLIS, BEVERLEY, MISS 392-5089
FAC GRAD STUD & RES, DAWSON HALL
1690 PARKFIELD AVE, DORVAL QUE 631-6496

ELLIS, BEVERLY ANN, MRS 392-4320
B SC (LEWIS & CLARK)
PHYS & OCC THERAPY, 3654 DRUMMOND
785 DE SAULNIERS BLVD, APT 1, ST LAMBERT QUE

ELLIS, C DOUGLAS, PROF 392-4435
BA (MCGILL), MA (TORONTO), PHD (MCGILL)
PROFESSOR LINGUISTICS
LINGUISTICS DEPT, 3465 PEEL ST
5205 HINGSTON AVE, MONTREAL 253 QUE 488-0298

ELO, J THOMAS, DR
BA (SIR GEORGE WILLIAMS), DDS (MCGILL U)
LECTURER FACULTY OF DENTISTRY
DENTISTRY FACULTY, STRATHCONA MED BLDG
1414 DRUMMOND ST, MONTREAL 107 QUE

ELSON, JOHN A, PROF 392-5796
B SC (WESTERN ONTARIO), M SC (MCM), PH D (YALE)
PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
467 CLARKE AVE, MONTREAL 217 QUE 932-7941

EMERY, ELIZABETH ANNE, MRS 453-6580
DEPARTMENT OF ENTOMOLOGY, MACDONALD COLLEGE, 800 P QUE
123 DOUGLAS SHAND AVE, PTE CLAIRE QUE 697-1184

EMERY, WINSTON GEORGE, PROF 392-8845
B ED (MCGILL), MA (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST,
MONTREAL QUE
123 DE LANGUEDOC, ST LAMBERT QUE 672-3146

EMOND, JACQUELINE DR 181-1781
BA (MONTREAL), MD (MONTREAL)
CSPQ
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
3570 RIDGEWOOD AVE, APT 308, MONTREAL QUE 937-6011

ENGELS, WILLIAM DENNIS, DR
B SC (ALTA), M D (ALTA)
F R C P S
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, A M I
137 DE NORMANDIE, ST LAMBERT QUE

ENGELSMANN, FRANTISEK, DR 842-1251
M A (CHARLES PRAGUE), PHD (CHARLES PRAGUE),
C SC (CHARLES PRAGUE)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
3250 FOREST HILL, APT 905 MONTREAL 247 QUE 731-6365

ENKEL, MAURICE ALEXANDER, MR 392-5073
UNDERGRAD LIBRARY, MCLENNAN LIB BLDG
CREVIER ST, MONTREAL N QUE 747-4097

EPSTEIN, JENNIE, MRS 392-5269
ACCOUNTING DEPT, ADMINISTRATION BLDG
5269 BYRON ST, MONTREAL 248 QUE 486-7675

EPSTEIN, OLGA, MISS
B A (SIR GEORGE WILLIAMS)
ENGINEERING LIBRARY, MACDONALD ENG BUILDING
5355 DUPUISAVE, MONTREAL 252 P Q 731-4429

EPSZTEIN, MARIA, MRS
SERIALS, MCLENNAN LIBRARY
5355 DUPUIS AVE, MONTREAL 252 QUE

ESTALL, ELIZABETH G, MISS 392-4513
B A (SIR GEORGE WILLIAMS)
REDPATH LIBRARY, 3459 MCTAVISH ST
1832 LINCOLN APT E, MONTREAL P Q 935-5855

ESTEY, RALPH H, PROF 453-6580
BSC (MCGILL), MS (MAINE), DIC (IMPERIAL COLL)
PHD (MCGILL)
F L S
PROFESSOR DEPARTMENT OF PLANT PATHOLOGY
DEPARTMENT OF PLANT PATH, MACDONALD COLLEGE 800 QUE
91 DEVON RD, BAIE D URFE QUE 453-4680

ESTRADA, ROBERTO L, DR
B SC (MCGILL), MD CM (MCGILL)
FRCS (C), FACS
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE
1414 DRUMMOND ST, MONTREAL QUE

ETHIER, ROMEO, DR 842-1251
BA (MONTREAL), MD (MONTREAL)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, M N H
48 VIVIAN AVE, TOWN OF MOUNT ROYAL,
MONTREAL 304 QUE

ETTINGER, SHELLIE, MISS 392-5969
JEWISH STUDIES PROGRAMME, 3511 PEEL ST
5744 LOCKWOOD AVE, MONTREAL 269 QUE 482-7186

EU, BYUNG CHAN, PROF 392-4458
BSC (SEOUL NATIONAL UNIV),
PHD (BROWN UNIVERSITY)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
276 BEAUCHAMP ST, MONTREAL QUE 365-7217

EVANS, ARWEL, PROF 392-5013
BSC (HONS) (WALES (SWANSEA)), M SC (WALES),
PHD (CAMBRIDGE ENGLAND)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4871 HAMPTON AVE, MONTREAL 253 QUE

EVANS, HARVEY A, DR
BA (TORONTO), MD (TORONTO)

DIPL PSYCHIAT, FRCPC
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY J G H, 3775 COTE STE CATHERINE, MONTREAL 249 QUE
4875 DUFFERIN RD, HAMPSTEAD, MONTREAL QUE

EWING, GORDON O, PROF 392-4720
MA(HONS) (GLASGOW), PHD (MCMASTER)
ASSISTANT PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
3655 RIDGEWOOD AVE, APT 304, MONTREAL 247 QUE

FADDEN, RICHARD BRIAN, MR 392-4233
B A HONS (MCGILL)
ASSISTANT RESIDENCE DIRECTOR OF GARDENER HALL
MENS RESIDENCES ADMINIST, GARDENER HALL
3925 UNIVERSITY ST, MONTREAL QUEBEC 392-4233

FAITH, ROBERT W, DR 937-6011
B A (MCGILL), DDS (MCGILL)
F R C D (C)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENT MTL GEN HOSP, 1650 CEDAR AVE, MONTREAL 109 QUE
723 UPPER BELMONT AVE, MONTREAL 217 PQ 933-1731

FALLEN, ERNEST LEO, DR 181-738
BSC (MCGILL), MD (QUEENS)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLINIC-MEDICINE, CARDIOVASCULAR DIVISION, 2-MED R V H
436 CARLYLE AVE, TOWN OF MOUNT ROYAL, QUEBEC

FANOUS, MAMDOUH A, PROF 453-6580
BSC (CAIRO UNIVERSITY), MSC (OKLAHOMA STATE), PHD (OKLAHOMA STATE UNIV)
ASSISTANT PROFESSOR DEPARTMENT OF AGRIC PHYSICS
AGRICULTURAL PHYSICS, MACDONALD COLLEGE QUE
P O BOX 72, STE ANNE DE BELLEVUE 800, QUE 453-3288

FARAGOH, FRANK, PROF 392-4982
B A (CALIF), M F A (YALE)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
17 ROYAL AVE, LONDON S W 3, ENGLAND

FARFAN, HENRY F, DR
B SC (MCGILL), MSC (MCGILL)
LECTURER DEPARTMENT OF SURGERY
MTL CHIL HOSP SURGERY, 2300 TUPPER ST
5300 COTE DES NEIGES RD, MONTREAL QUE

FARKAS, EDWARD J, PROF 392-5434
B S E (PRINCETON UNIV), SC D (MASS INST TECH)
M C S C H E, M C I C, M A I C H E
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
30 BAYVIEW AVE, POINTE CLAIRE 710 QUE 697-6506

FARLEY, DAVID, PROF 392-5408
B ARCH (MCGILL), M ARCH (HARVARD),
M C P (HARVARD)
P Q A A
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE DEPT, MCCONNELL ENG BLDG
900 SHERBROOKE ST W, APT 102, MONTREAL 844-4242

FARLEY, RICHARD A, DR 392-4949
B A (NORTHLAND COL), B L S (U OF WISCONSIN),
M S (U OF ILLINOIS), PH D (U OF ILLINOIS)
DIRECTR OF LIBRARIES MCLENNAN LIBRARY - ADMIN MCLENNAN LIBRARY
3465 REDPATH APT 901, MONTREAL QUE 842-6348

FARMAKIDES, ANNA, PROF 392-5222
FRENCH BACC (ATHENS), L PHIL (ATHENS),
M A (RAND), DOCT PHIL (MCGILL)
ASSOCIATE PROFESSOR CLASSICS
LEACOCK BLDG
4095 COTE DES NEIGES RD, APT 11 MONTREAL QUE 935-4519

FARMER, FLORENCE A, PROF 453-6580
BHS (MCGILL), M SC (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR SCHOOL OF FOOD SCIENCE
MACDONALD COLLEGE 800, QUE
30 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-5687

FARMER, MARGARET, MRS 392-3057
B L S (MCG), M L S (MCG)
R N
LIBRARIAN MEDICAL LIBRARY
MCINTYRE MED SCI
44A PERRAULT AVE, STE ANNE DE BELLEVUE QUE 453-2057

FARRELL, PATRICK G, PROF 392-5984
P H D (EXETER)
B SC (EXETER), B SC (EXETER)
/PH D/EXETER
ASSISTANT CHAIRMAN CHEMISTRY
CHEMISTRY DEPT, OTTO MAASS CHEM BLDG
139 BROCK AVE SOUTH, MONTREAL WEST QUE 486-1602

FARRER, PAUL ANDREW, DR 181-1892
MBBS (SYDNEY AUSTRALIA)
C S P Q
ASSISTANT PROFESSOR THERAPEUTIC RADIOLOGY
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
DIAGNOSTIC RADIOL, R V H
3463 STE FAMILLE ST, APT 2104, MONTREAL QUE 181-1892

FARSKY, ALICE KATE, MRS 392-5067
LAW LIBRARY, NEW CHANCELLOR DAY HALL
4311 OLD ORCHARD, APT 903, MONTREAL 260 QUE

FAUST, BETTY, MRS 392-4772
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
3960 BENNY AVE, APT 11, MONTREAL 261 QUE 481-6149

FAVREAU, OLGA, MRS 392-4694
BSC (MCGILL), MSC (MCGILL)
LECTURER PSYCHOLOGY
STEWART BIOL SC BLDG
380 LATOUR ST, ST JEAN QUE 348-8017

FAVRON, LINDA, MRS 392-3063
MEDICAL LIBRARY, MCINTYRE BLDG
300 RIELLE ST, APT 3, VERDUN 203 QUE

FEENY, LOUISE, MISS 392-5257
STUDENT AID OFFICE, ADMINISTRATION BLDG
8 ST THOMAS, APT 8, LONGUEUIL QUE

FEINBERG, DOROTHY, MISS 392-4550
FACULTY OF MUSIC, 555 SHERBROOKE ST, W,
5940 DECELLES AVE, APT 6 MONTREAL QUE

FEINDEL, WILLIAM HOWARD, DR 181-407
BA (ACADIA UNIVERSITY), M SC (DAL),
MD CM (MCG), D PHIL (OXFORD UNIVERSITY)
F R C S (C), F A C S
DIRECTOR MONTREAL NEUROLOGICAL INSTITUTE
CHAIRMAN DEPT NEUROLOGY & NEUROSURGERY
FACULTY OF MEDICINE, M N I
39 THORNHILL AVE, MONTREAL 217 QUE 288-4705

FELDMAN, RONALD BENJAMIN, DR
MD (TORONTO), DIP PSYCH (MCGILL)
L M C C
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE STE CATHERINE, MONTREAL 249 QUE
32 THURLOW RD, HAMPSTEAD 254 QUE 342-3111

FELDSTEIN, HELEN N, MISS 392-5209
BUILDINGS & GROUNDS, MAINTENANCE
4700 PLAMONDON AVE, APT 12 MONTREAL QUE 733-1518

FELTZ, PAUL, PROF 392-3013
SPCN (STRASBOURG), LICENCE DES SCI (UNIV PARIS)
DIPL D ETUDES SUP (UNIV PARIS)
AGREGATION (FRANCE)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SCIENCES
9 VILLA DES GOBELINS, PARIS 13, FRANCE

FENICHEL, ALLEN H, PROF 392-5233
BS (PENNSYLVANIA), MA (PENN),
PHD (PENNSYLVANIA)
ASSOCIATE PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
4643 SHERBROOKE ST W, APT 1 MONTREAL QUE

FENTON, FREDERICK, DR 392-5072

M D (QUEEN S UNIV)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
LECTURER DEPT OF EPIDEM & HEALTH
LECTURER DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, 3775 UNIVERSITY ST
232 METCALFE AVE, WESTMOUNT QUE 935-0856

FENWICK, JOHN D, DR
B SC (MCGILL), D D D (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 4695 SHERBROOKE W, MONTREAL 110 QUE
4238 BEACONSFIELD AVE, MONTREAL 261 QUE 935-5024

FERAHIAN, SELWA, MISS 392-5197
INST OF ISLAMIC STUDIES, STEPHEN LEACOCK BLDG
4998 DE MAISONNEUVE BLVD, APT 1416,
WESTMOUNT 215 PQ 484-5492

FERAULT, THERESE M A, PROF 392-4672
BAC L (PARIS), LIC P (INST DETUDES MED),
MA (MONTR)
ASSISTANT PROFESSOR FRENCH
FRENCH DEPT, PETERSON HALL
3553 DUROCHER ST, APT 601 MONTREAL 18 QUE 844-1311

FERCH, WERNER, MR 392-6797
PHYSIOLOGY, MCINTYRE
305 EUGENE ST, FABREVILLE QUE 625-1753

FERGUSON, MICHAEL J, PROF 392-5414
B A SC (TORONTO), M S (CAL INST TECH),
PHD (STANFORD)
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
3463 STE FAMILLE ST, APT 2204, MONTREAL QUE 845-0096

FERGUSSON, CELIA L, PROF 453-6580
BHS (MCGILL)
CDQ
ASSISTANT PROFESSOR SCHOOL OF FOOD SCIENCE
FOOD SCIENCE, MACDONALD COLLEGE 800, QUE
4 MAPLE AVE, ST ANNE DE BELLEVUE QUE 453-1463

FERNANDEZ, EDWIN F, MR
DEPT OF MECHANICAL ENGIN, THOMAS WORKMAN BLDG
3497 GIROUARD AVE, MONTREAL 260 PQ 486-1075

FETTERLY, NORMA, MRS 392-5050
BA (UBC), MSW (U OF TORONTO)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
128 MONTROSE AVE, ST LAMBERT QUE

FIELD, JOYCE D, PROF 392-4303
DIP OCC TH (TORONTO)
QSOT
ASSISTANT PROFESSOR
PHYSICAL▮OCCUPATIONAL THERAPY
PHYS OCC THERAPY DEPT, DAVIS HOUSE
APT 6 3782 DUPUIS AVE, MONTREAL 249 PQ 739-9858

FINCHAM, CHRISTINE GAY, MISS 392-8023
CIRCULATION, MCLENNAN LIBRARY
5998 PARK AVE APT 17, MONTREAL 152 QUE 769-4608

FINDLAY, MERLIN CHAPMAN, PROF 392-5873
B B A (TEXAS), M B A (TEXAS), PH D (TEXAS)
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
2250 GUY APT 2901, MONTREAL 109 QUE

FINIDORI, PAULE, MISS 392-4668
BREV TECH SUP (FRANCE)
FRENCH DEPT, PETERSON HALL
725 DE ROUSSILLON, APT 511, LONGUEUIL QUE 670-0639

FINLAY, BARBARA JOYCE, MISS 392-5400
B A (WESTERN ONT), BLS (TORONTO)
LIBRARIAN MCLENNAN LIBRARY - CAT
CATALOGUING DEPT, MCLENNAN LIBRARY
625 MILTON ST, APT 501, MONTREAL 130 QUE

FINLAYSON, JANET LOUISE, MISS 453-6580
B SC (QUEBEC)
CPLQ
LIBRARIAN LIBRARY MACDONALD COLL
MACDONALD COLLEGE 800, QUE
6 MAPLE AVE APT 59, STE ANNE DE BELLEVUE QUE 453-9581

FINLAYSON, MORRISON H, DR 937-6011
M B CHB (EDINBURGH)
F R C P (C)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY
66 NELSON AVE, MONTREAL 153 QUE 937-6011

FIRTH, DAVID, PROF 392-3087
BA (CAMBRIDGE ENGLAND), MA (TOR), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SCI CTR
3655 DRUMMOND ST, SUITE 1128, MONTREAL 274-2310

FIRTH, MARK, MR 392-5850
B METLRGY (SHEFFIELD), M SC (MCGILL)
DEMONSTRATOR SENIOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
625 MILTON ST APT 1106, MONTREAL 130 QUE

FISCHER, LEWIS A, DR 453-6580
AGRIC DEGREE (HALLE), PH D (AGR) (HALLE)
RESEARCH ASSOCIATE
DEPARTMENT OF AGRIC ECONOMICS
MACDONALD COLLEGE
40B PERREAULT AVE, STE ANNE DE BELLEVUE QUE 453-6302

FISCHER, MAGDA, MRS 453-6580
BACC (VIENNA)
MICROBIOLOGY DEPT, MACDONALD COLLEGE 800, QUE
40B PERRAULT AVE APT 5, STE ANNE DE BELLEVUE QU 453-6302

FISHER, DONNA RAE, MRS 392-4513
BA (S G W U)
REDPATH LIBRARY, MCLENNAN LIB BLDG
7425 CANORA RD, APT 212,
TOWN OF MOUNT ROYAL QUE 731-4044

FISK, GUY H, DR 392-4301
BA (MCGILL), MD (MCGILL)
DTM&H(ENG), F R C P (C)
DIRECTOR OF SCHOOL OF PHYS AND OCC THERAPY
ASSOCIATE PROFESSOR
PHYSICAL▮OCCUPATIONAL THERAPY
PHYS OCC THERAPY DEP, DAVIS HOUSE,
3654 DRUMMOND STREET
565 PORTLAND AVE, MONTREAL 16 QUE 738-9867

FITZGERALD, PATRICK, DR 842-1251
MB BCH (NATIONAL U IRELAND)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
R V H
608 VICTORIA AVE, MONTREAL QUE 695-1139

FITZHARDINGE, PAMELA MARJORIE, D 937-8511
BSC (MCGILL), MD C M (MCGILL)
FRCP (C)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, MONTREAL CHILDRENS HOSP
1550 MCGREGOR AVE, APT 1502, MONTREAL QUE 935-8946

FLEISCHER, GEORGE T, MR 392-8298
BSC HONOURS (MCG), M SC (MCGILL)
LECTURER MATHEMATICS
BURNSIDE HALL
5525 TRENT AVE, APT 601, MONTREAL QUE 489-1268

FLETCHER, BARRY D, DR
BA (WESTERN ONTARIO), MDCM (MCGILL)
FRCPC
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
LECTURER DEPT OF PEDIATRICS
PEDIATRICS M C H, 2300 TUPPER AVE,
MONTREAL 108 QUE
55 THOMHILL AVE, WESTMOUNT QUE 937-7003

FLETCHER, JOHN GRANT, MR 392-4775
B ENG (MCGILL)
EXECUTIVE DIREC GRAD SOC
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST,
MONTREAL

1260 MCGREGOR, APT 802, MONTREAL QUE 849-4998

FLETCHER, RONALD G, DR
DEMONSTRATOR SENIOR FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA DENT BLDG
1538 SHERBROOKE ST W, SUITE 811, MONTREAL QUE

FLINT, C ANNA, DR 937-6011
BACCALAUR (STRASBOURG), M D (PARIS)
L M C C
ASST PROF DEPT OF MEDICINE & CLIN MED
MED & CL MED M G H, 1650 CEDAR AVE
4111 BEACONSFIELD, MONTREAL 261 QUE 489-3737

FLOCH, WOLFGANG, PROF 392-8897
BA (UBC), M ED (TOR), PHD (TORONTO)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
500 PINE WEST APT 1004, MONTREAL PQ

FLOHR, PAUL R, PROF
B A (BROOKLYN COLLEGE), M A (BRANDEIS UNIV)
VISITING ASST PROF HISTORY
STEPHEN LEACOCK BLDG
3622 DUROCHER ST, MONTREAL QUE

FLYNN, DIANA, DR
MCGILL-MCH LEARNING CTR
298 STRATHMORE BLVD, MONTREAL QUE 937-8511

FODOR, ALEXANDER, PROF 392-4680
BACH (UNIV OF LENINGRAD), MA (MONTR),
PH D (UNIV DE MONTREAL)
ASSISTANT PROFESSOR RUSSIAN
RUSSIAN, 3487 PEEL ST
4415 HINGSTON AVE, MONTREAL 261 QUE 484-5083

FOGG, WINNIFRED I, MRS 453-6580
AGRIC CHEM DEPT, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE PQ
531 CEDAR ST, BEAUREPAIRE QUE 695-3075

FOLDVARI, JANOS, MR 392-5389
DEPT OF ELECTRICAL ENG, MCCONNELL ENG BLDG
300 JOLIETTE ST, APT 403, LONGUEUIL QUE

FOLLAIN, EVELYNE L, MISS 392-4567
ITALIAN DEPT, 3491 PEEL ST
1402 RUE LOUVAIN ST E, MONTREAL QUE 388-0500

FONG CHONG, JOHN R, DR 937-0968
B SC (ST FRANCIS XAVIER U), D D S (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 3545 COTE DES NEIGES RD,
MONTREAL QUE
3499 COTE STE CATHERINE, MONTREAL 250 QUE
739-0426

FONTEIN, ROSINA, MRS 392-4781
BSC (MCGILL)
NOTMAN PHOTO ARCHIVES, MCCORD MUSEUM
333 ELM AVE, WESTMOUNT QUE 935-1305

FOOTE, JOHN W, DR 842-1251
B A (QUEEN S), M D C M (MCGILL),
DIP UROLOGY (MCGILL)
FRCS (C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY UROLOGY, R V H
56 KINDERSLEY AVE, MONTREAL 305 QUE 486-4508

FORBES, COLIN E, DR
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
UNIV OF NAIROBI, NAIROBI KENYA E AFRICA
MTL CHILDREN S HOSPITAL, 2300 TUPPER ST,
MONTREAL QUE

FORBES, DAVID R, DR 937-8511
MD (WESTERN ONTARIO)
F R C S (C)
LECTURER DEPARTMENT OF SURGERY
SURGERY MTL CHLD HOSP, MTL CHILD HOSP SURGERY,
2300 TUPPER ST
464 ELM AVE, WESTMOUNT, MONTREAL 217 QUE

FORBES, PATRICIA ANN, DR
MEDICINE (MANCHESTER), MD (MANCHESTER)
R C (C)
LECTURER DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
464 ELM ST, WESTMOUNT QUE 931-3084

FORBES, VIVIENNE MARY, MRS 392-5334
BSC (MANITOBA), MSC (MCGILL)
PHYSICS DEPT, MACDONALD PHYSICS BLDG
1260 MACKAY ST, APT 2, MONTREAL 107 QUE
937-6411

FORD, PERCY, MR 453-5864
POWER HOUSE, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE
708 GRAHAM BLVD, TOWN OF MOUNT ROYAL QUE
631-5390

FORD, ROBERT M, DR 937-6011
MD (WESTERN ONTARIO)
F R C P
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
NEUR MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
12 NORTHCOTE ROAD, HAMPSTEAD 254 QUE 482-5027

FORDE, EDWIN ROSER, MR 392-5380
B SC (MCGILL)
MCLENNAN LIBRARY - CAT, MCLENNAN LIBRARY
532 MILTON ST, APT 5, MONTREAL 130 QUE 842-3595

FORDE, JOHN MARTIN, PROF 392-5476
B ENG (MCG), M ENG (MCG)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
RR3, DUNHAM, COUNTY MISSISQUOI QUE

FOREMAN, JOHN A, DR 842-1251
M D (W ONT)
LECTURER DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY, RVH
3510 MOUNTAIN ST, MONTREAL QUE

FORSEY, ROY R, PROF
M D (TORONTO), FRCP(C) (ROY COL P&S CAN)
F R C P (C)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
DENTISTRY FAC, STRATHCONA MED BLDG
1414 DRUMMOND ST, MONTREAL QUE

FORSYTH, J M, MR 392-4725
BUSDIP (ALLAN GLENS SCOTLAND), ACCDIP (TOR)
BUS MGR ATHLETICS PHYSICAL EDUCATION
ATHLETICS DEPT, GYMNASIUM
4090 SIR GEORGE SIMPSON, LACHINE QUE 634-2279

FORTIN, PAULETTE M, MISS 392-4610
RUSSIAN & SLAVIC STUDIES, 3487 PEEL ST
625 MILTON ST, APT 1105, MONTREAL 130 QUE
843-5468

FOSSEY, JOHN M, PROF 392-5335
B A (BIRMINGHAM), PH D (BIRMINGHAM)
ASSISTANT PROFESSOR CLASSICS
STEPHEN LEACOCK BLDG
3525 PATRICIA AVE, MONTREAL 262 QUE

FOSTER, WILLIAM F, PROF 392-5373
LL B (HONS) (AUCKLAND)
ASSOCIATE DEAN OF STUDENT AFFAIRS
ASSOCIATE DEAN FACULTY OF LAW
FACULTY OF LAW, CHANCELLOR DAY HALL
3644 PEEL ST, MONTREAL 260 QUE 842-7063

FOURNIER, CLAUDETTE, MISS 392-8277
FACULTY OF MEDICINE, 1110 PINE AVENUE
500 RUE ABELARD, APP 606, ILE DES SOEURS QUE

FOWLE, ALICE, MRS 392-5258
STUDENT AID OFFICE, F CYRIL JAMES BLDG
1 BRIDGE STREET, HOWICK QUE 825-2682

FOX, BARBARA J, MRS 392-8256
B A (U B C), TEACH DIPL (U B C)
LECTURER COMPUTING CENTRE
BURNSIDE HALL
C/O MR A R SOLONEN, 560 BAXTER AVE,
VICTORIA B C 768-6582

FOX, ERNEST WESLEY, MR 392-8298
BSC (SIR GEORGE WILLIAMS)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4643 SHERBROOKE ST W, APT 24 MONTREAL QUE

FOX, GORDON S, DR

BSC (TORONTO)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, ROYAL VICTORIA HOSP
9 LYNCROFT RD, MONTREAL 254 QUE

FOX, THOMAS F, MR 392-8297
B A (OAKLAND)
RESEARCH ASSISTANT MATHEMATICS
PART-TIME LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
4652 PARK AVE, MONTREAL QUE

FRANCIS, LYMAN, DR 392-4927
DDS (MCGILL), MASTERS (MCGILL)
F A C D
PROFESSOR FACULTY OF DENTISTRY
ASSOCIATE PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
ASSISTANT DEAN FACULTY OF DENTISTRY
DENTAL CLINIC MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
49 BALLANTYNE S, MONTREAL W QUE 484-1834

FRANCOEUR, PEARL, PROF 392-8825
BSC (SIR GEORGE WM)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY EDUCATION, 3700 MCTAVISH ST,
MONTREAL QUE
536 OUTREMONT AVE, MONTREAL QUE

FRANCOEUR, THOMAS A, PROF 392-8810
BA (MONTREAL), M A (OTTAWA), ED D (MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN DEPT OF CATHOLIC STUDIES EDUC FAC
FACULTY OF EDUCATION, 3700 MCTAVISH ST,
MONTREAL QUE
3437 BEACONSFIELD AVE, MONTREAL QUE 482-0436

FRANK, MYRNA, MRS 392-4501
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
4680 LINTON AVE, APT 8, MONTREAL 252 QUE

FRANKENBERG, HERBERT B, MR 392-8849
B A (S G W U), B L S (MCG)
CBPQ
LIBRARIAN EDUCATION LIBRARY
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6060 COTE ST LUC RD, APT 406, MONTREAL 482-0512

FRANKMAN, MYRON JOSEPH, PROF 392-5232
B MGT E (RENSSELAER POLY),
PH D (UNIV OF TEXAS)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
3555 ATWATER APT 112, MONTREAL 109 QUE 932-8280

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FRASER, D GEORGE, DR
B A (MCGILL), M D C M (MCGILL)
F R C P (C)
LECTURER UNIVERSITY CLINIC M G H
MED & CLINICAL MED, UNIVERSITY OF NAIROBI
C/O JAMES F T FRASER ESQ, 29 BARAT RD,
MONTREAL 217 QUE

FRASER, FRANK CLARK, PROF 392-4589
DSC (ACADIA)
BSC (ACADIA), M SC (MCG), M D C M (MCG)
PHD (MCGILL)
F R S C
PROFESSOR BIOLOGY
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
BIOLOGY, STEWART BIO SCI BLDG
3410 ATWATER APT 17, MONTREAL 109 PQ 933-3085

FRASER, KENNETH L, MR 392-5396
B ENG (MCGILL)
CEQ
LECTURER DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
595 BEAUREPAIRE DRIVE, BEACONSFIELD 870,
STE ANNE DE BELLEVUE PQ 697-6371

FRASER, MURRAY JUDSON, PROF 392-5345
BSC (DALHOUSIE), M SC (DAL), PHD (CAMBRIDGE)
ASSOCIATE PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY DEPT, MCINTYRE MED SCI CTR
1550 MCGREGOR ST, APT 1507 MONTREAL QUE
931-2682

FRASER, ROBERT G, DR 181-771
MD (MANITOBA)
PROFESSOR DIAGNOSTIC RADIOLOGY
DEPARTMENT CHAIRMAN DIAGNOSTIC RADIOLOGY
DIAGNOSTIC RADIOLOGY, ROYAL VICTORIA HOSPITAL
1212 PINE AVE W APT 1908, THE HORIZON APTS
MONTREAL 112 QUE

FRASER, W DENNIS, DR
BSC (MCGILL), MD (TORONTO)
MRCOG, FRCS
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOLOGY, ROYAL VICTORIA HOSP
666 SHERBROOKE ST W, SUITE 504,
MONTREAL 111 QUE 842-4497

FREDERICK, GLORIA J, DR 392-4399
BSC (MCGILL), PHD (MCGILL)
CHEMISTRY, OTTO MAASS BLDG
3563 AYLMER ST, MONTREAL 130 QUE 288-5336

FREEDMAN, ARTHUR N, DR 842-1251
B A (MCGILL), M D CM (MCGILL), M SC (MCGILL)
DIP SURG (MCGILL)
F R C S(C), C S P Q, D A B S
LECTURER DEPARTMENT OF SURGERY
SURGERY, ROYAL VICTORIA HOSPITAL,
687 PINE AVE MTL 112
5845 COTE DES NEIGES RD, SUITE 400,
MONTREAL 249 QUE

FREEDMAN, GARY L, DR
DDS (MCGILL), MSD (UNIV OF WASHINGTON)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA MED BLDG
20 HOLTHAM ROAD, HAMPSTEAD 254 QUE 481-1090

FREEDMAN, SAMUEL O, DR 937-6011
B SC (MCGILL), MD CM (MCGILL)
FRCPC
PROFESSOR UNIVERSITY CLINIC M G H
UNIV-CLIN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
658 MURRAY HILL AVE, MONTREAL QUE

FREEMAN, DOROTHY R, PROF 392-5045
BA (MCGILL), DIP (MCG SCH OF SOC WORK)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
4854 COTE DES NEIGES RD, APT 1807 MONTREAL 247
738-5328

FRENA, JOHN, MR 392-5023
B COMM (WINDSOR)
SR SYSTEMS ANALYST MANAGEMENT SYSTEMS
ADMINISTRATION BUILDING
10660 ST HUBERT APT 409 388-0838

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FRESCO, JAMES M, PROF 392-5785
BA (NYU), M S (BROOKLYN POLYTECH),
PH D (UNIV OF ARIZONA)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
100 GASPE ST, NUN S ISLAND, VERDUN QUE

FRIESEN, HENRY G, DR 181-1769
MD (MANITOBA)
F R C P (C)
PROFESSOR UNIVERSITY CLINIC R V H
M R C FELLOW UNIVERSITY CLINIC R V H
UNIV CLIN, PROTEIN & POLYPEPTIDE
64 LOCKHART ST, TOWN OF MT ROYAL QUE 737-3480

FRISK, MARION, MRS 392-4383

PHYSICAL PLANT, 840 MCGREGOR
63 CHESTER AVE, VALOIS QUE 697-0345

FRITH, MAY BEATRICE, PROF 392-8865
BA (HON) (LONDON), MA (COLUMBIA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
6550 SHERBROOKE ST WEST, APT 1401 MONTREAL 261, QUE 487-4099

FROJMOVIC, MAURICE M, PROF 392-3080
BSC CHEM (MCGILL), PHD CHEM (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY, MCINTYRE MED BLDG
4094 KENT AVE, MONTREAL QUE 739-1283

FROMSON, DAVID RICHARD, PROF 392-5827
B A (U C L A), PH D (U C L A)
ASSISTANT PROFESSOR BIOLOGY
STEWART BIOLOGY BLDG
5152 BOURRET AVE, MONTREAL 252 QUEBEC 737-1833

FROST, STANLEY B, DR 392-5255
DD (VIC TOR) D LITT (MEM)
BACH DIV (LONDON), M TH (LONDON),
DR PHIL (MARBURG)
VICE PRINCIPAL ADMIN & PROF FACULTIES
PROFESSOR FAC OF RELIGIOUS STUDIES
V P PROFESSIONAL AFFAIRS, ADMINISTRATION BLDG
5 GRANVILLE RD, HAMPSTEAD 254 QUE 489-3763

FRYE, DEAN C, PROF 392-5006
BA (NEW YORK), M A (N Y), PHD (WISCONSIN)
ASSOCIATE PROFESSOR ENGLISH
ARTS BUILDING
2300 ST MATTHEW, APT 1010, MONTREAL QUE

FUKADA, MINORU, PROF 392-5393
B SC (UNIVERSITY OF TOKYO),
M SC (UNIV OF CALIFORNIA),
PH D (UNIV OF CALIFORNIA)
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
4011 GREY AVE, MONTREAL 260 QUE 482-1954

FULLER, OLIN MAYNARD, PROF 392-5436
B CH E (GEORGIA INST TECH),
PH D (GEORGIA INST TECH)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
896 BOISSY ST, ST LAMBERT QUE 672-4746

FUNG-A-LING, EVELYN, MRS 392-4643
BIOLOGY DEPT, STEWART BIOLOGY BLDG
1100 STE FOY, ST BRUNO QUE 653-2843

FURLAN, FRANCIS, PROF 392-4447
LIC EN LETTRES (BORDEAUX),
ETUDES SUP (BORDEAUX),
CAPES (FRANCE), AGREGATION (FRANCE)
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG & LIT, PETERSON HALL
592 WALPOLE AVE, TOWN OF MOUNT ROYAL QUE 733-2230

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MA (ATHENS), PHD (PRINCETON)
PROFESSOR ART HISTORY
ART HISTORY, ARTS BLDG
3660 PEEL ST, APT 10 MONTREAL QUE

GALBRAITH, JOHN A, PROF 392-5886
D F C
B COM (MCGILL), M COM (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR ECONOMICS
LEACOCK BLDG
600 GROSVENOR AVE, WESTMOUNT QUE

GALES, D LORNE, MR 392-4764
B A (MCGILL), B C L (MCGILL)
MCGILL FUND COUNCIL
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST, MONTREAL QUE
486 MOUNTAIN AVE, MONTREAL 217 PQ 932-4734

GALLATI, ERNST, PROF 392-5090
B A (ENGELBERG), BEZIRKSLEHRER (AARAU),
PH D (MCGILL MONTREAL)
OGLTA
ASSISTANT PROFESSOR GERMAN
GERMAN DEPT, 3666 MCTAVISH, MONTREAL QUE
3455 STANLEY ST APT 302, MONTREAL QUE

GALLEY, WILLIAM CLAUDE, PROF 392-3015
B SC (MCG), PH D (CALIF INST OF TECH)
ASSISTANT PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
103 D ALSACE, ST LAMBERT QUE 672-5906

GALVAN, LUIS, PROF
PSYCHIATRY, ALLAN MEMORIAL INST
2775 TRINITAIRES BLVD, APT 33 MONTREAL 206 QUE, 761-2023

GARDEN, MARY P, MISS 392-5457
PERSONNEL OFFICER DIRECTOR'S OFFICE,LIBRARIES ADMINISTRATION, MCLENNAN LIBRARY
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GARDINER, ROBERT J, DR 937-6011
B A (U WESTERN ONTARIO),
M D (UNIV WEST ONTARIO)
F R C P C
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
MED RESEARCH SCHOLAR UNIVERSITY CLINIC M G H
UNIV CLIN MTL GEN HOSP, 1650 CEDAR AVE
4687 WESTMOUNT AVE, MONTREAL 217 QUE 488-0402

GARDNER, JOHN ROBERT, MR 392-5369
B A (TORONTO), M A (OXON)
SPECIAL LECTURER MATHEMATICS
3700 MCTAVISH
4520 WILSON AVE, MONTREAL QUE 866-6411

GARDNER, ROBERT, PROF 392-8860
BED (MCGILL), MED (BOSTON UNIVERSITY)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
5135 DOHERTY AVE, MONTREAL 265 QUE 489-1797

GARMAISE, MARION, MRS 392-5050
BA (MANITOBA), DIP SOC WRK (TORONTO),
M SC (MCG)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY STREET
4021 MARCIL AVE, MONTREAL QUE

GARNEAU, EDITH-ANN, MRS 392-5034
ADM ASSISTANT I SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
600 MONTCALM ST, MONTREAL 132 QUE

GARNIER, BENJAMIN J, PROF 392-8038
B A (CAMBRIDGE), M A (CAMBRIDGE)
PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
300 GRAHAM BLVD, APT 404 T M R,
MONTREAL 304 QUE 731-1258

GARREFFA, JUDY, MRS 392-4388
BLDGS & GRDS, 840 MCGREGOR
2765 GRANBY AVE APT 4, MONTREAL 427 QUE 256-0888

GARSIDE, BRUCE, PROF 392-5152
BA (WILLIAM & MARY), PHD (CLAREMONT CALIF)
ASSISTANT PROFESSOR PHILOSOPHY
772 SHERBROOKE ST.W.
131 CLANDEBOYE, WESTMOUNT QUE, MONTREAL 215 QUE 849-6849

GASCH, CHAVA, MRS 392-5969
DIPLOMA (HEBREW TEACH SEMIN)

SESSIONAL LECTURER JEWISH STUDIES PROGRAM
JEWISH STUDIES PROGRAM, 3511 PEEL ST
4922 FULTON ST, MONTREAL 248 QUE 733-9895

GAULIN, ROLAND, MR 392-4393
CHEMISTRY, OTTO MAASS CHEMISTRY BLD
4189 HAROLD ST, PIERREFONDS QUE 626-2363

GAULT, HELEN M, PROF 392-4301
BSC (MCGILL)
TMMG, TME(ENG)
ASSOCIATE PROFESSOR
PHYSICAL▮OCCUPATIONAL THERAPY
PHYSICAL & OCCUPA THERAP, DAVIS HOUSE
3028 BRESLAY AVE, MONTREAL 6 QUE.
MONTREAL 218 QUE 935-2974

GAULT, M HENRY, DR 181-722
BSC (MCGILL), MDCM (MCG), MD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, ROYAL VICTORIA HOSPITAL
492 LANSDOWNE AVE, MONTREAL QUE 935-3258

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GEEZA, VIVIAN, MRS 392-5028
B A (OBERLIN COLLEGE)
SCHOOL FOR GRAD NURSES, WILSON HALL
842 DAVAAR ST, MONTREAL 154 PQ

GEIS, GEORGE L, PROF 392-5224
BA (COLUMBIA COLLEGE), MA (COLUMBIA),
PHD (COLUMBIA UNIVERSITY)
ASSOCIATE PROFESSOR
CENTRE FOR LEARNING & DEVELOP
DIRECTOR CENTRE FOR LEARNING & DEVELOP
LEARNING & DEVELOPMENT, STEWART BIOLOGY BLDG
1550 MCGREGOR ST, MONTREAL QUE

GELFAND, MORRIE M, DR
B SC (MCG), MDCM (MCG)
FRCS(C), FACS, FACOG
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS & GYN JWSH GEN HOSP,
3775 COTE STE CATHERINE,MONTREAL 249 QUE
THREE WESTMOUNT SQUARE, APT 1311,
MONTREAL 216 QUE 731-3281

GENDRON, GHISLAIN, PROF 453-6580
B A (LAVAL), B SC (LAVAL), M S (WISCONSIN)
PHD (WISCONSIN)
ASSISTANT PROFESSOR DEPARTMENT OF AGRONOMY
AGRONOMY AGRICULTURE, MACDONALD COLLEGE 800,
QUE
9 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-7889

GENEST, JACQUES, DR 842-1481
CC
BA (MONTREAL), MD (MONTREAL)
FRCPC, FACP
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
1171 MOUNT ROYAL BLVD, OUTREMONT QUE 274-6212

GEROLS, JACQUELINE, MRS 453-6580
L ES L (BORDEAUX), C A P E S(THEORY) (PARIS),
M A (MONTREAL)
SESSIONAL LECTURER PHYSICAL BIO-SCI PROGRAM
INSTRUCTOR DEPT
STAFF FRENCH COURSES, MAIN BUILDING,
MACDONALD COLLEGE QUE
12 CENTENNIAL CRESCENT, KIRKLAND QUEBEC
697-0363

GERSTEIN, WILLIAM, DR
B SC (MCG), M D (BAYLOR)
F R C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, APT 270, MONTREAL QUE

GERTEL, MORRIS, DR
BSC (MCGILL), MDCM (MCGILL)
FRCP C
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ROYAL VICTORIA HOSP
5763 BLOSSOM AVE, MONTREAL 268 QUE

GIACOMELLI, JULIAN F, DR
BSC (MCGILL), DDS (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 3545 COTE DES NEIGES RD,
MONTREAL 109 QUE
3545 COTE DES NEIGES RD, MONTREAL QUE

GIANNOPOULOS, GEORGE, DR 332-6995
B SC (SGWU), M SC (MCGILL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXP MED, R V H
10355 BOIS DE BOULOGNE, MONTREAL 355 QUE

GIBBARD, BRUCE A, DR 392-4237
BACH ARTS (QUEENS), M D (QUEENS)
C R C P (C)
ASSOCIATE DEAN FACULTY OF MEDICINE
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, AMI
4324 SHERBROOKE W APT 48, MONTREAL QUE

GIBBONS, JAMES E, DR
MDCM (QUEENS)
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER ST,
MONTREAL 108 P QUE
644 LANSDOWNE AVE, WESTMOUNT QUE 937-8511

GIBBS, GRAHAM WILLIAM, PROF 392-8058
BSC (LONDON), MSC (MCGILL)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
PATHOLOGY INST
330 WEST ACRES, DOLLARD DES ORMEAUX QUE
626-3350

GIBBS, SARAH P, PROF 392-8070
AB (CORNELL UNIVERSITY), M S (CORN),
PHD (HARVARD RADCLIFFE)
ASSOCIATE PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
70 HENLEY AVE, TOWN OF MOUNT ROYAL QUE 738-2176

GIBSON, JOHN D, DR
LECTURER DIAGNOSTIC RADIOLOGY
1650 CEDAR AVE, MONTREAL 109 QUE
24 KENASTON AVE, MONTREAL QUE

GIBSON, WINSOME JOY, MISS 392-4832
B A (U OF MANITOBA), M L S (MCGILL)
LIBRARIAN RELIGIOUS STUDIES LIBRARY
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GICK, BERNARD J, MR 392-5274
B COMM (SIR G WMS)
RES GRANTS OFFICER
FACULTY OF GRAD STUDIES & RES
FAC GRAD STUDIES & RESCH, DAWSON HALL
58 SWEET BRIAR DR, BEACONSFIELD QUE 695-2837

GILBERT, RICHARD G B, DR 181-348
MRCS LRCP (LONDON), MB BS (LONDON)
FFARCS, FRCP (C), FACA
PROFESSOR NEUROLOGY & NEUROSURGERY
PROFESSOR DEPARTMENT OF ANAESTHESIA
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
470 MOUNTAIN AVE, WESTMOUNT, MONTREAL 217 QUE
842-1251

GILCHRIST, JOAN, PROF 392-5030
BN (MCGILL), MSC(APPL) (MCGILL)
RN
ASSOCIATE PROFESSOR SCHOOL FOR GRAD NURSES
DIRECTOR SCHOOL FOR GRAD NURSES
SCHOOL FOR GRAD NURSES, 3506 UNIVERSITY ST

237 FOREST RD, BEACONSFIELD QUE 695-4098

GILDAY, ELIZABETH, MISS 392-5115
VOCATIONAL GUIDANCE CENT, SERVICE, 522 PINE AVE
495 VICTORIA AVE, WESTMOUNT QUE 932-3013

GILDENHUYS, DION, PROF 392-4808
BSC (UNIV OF PRETORIA), PHD (MCGILL)
ASSISTANT PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
3455 DUROCHER ST APT 801, MONTREAL 130 P Q

GILL, JAMES E, PROF 392-5797
BSC (MCGILL), PHD (PRINCETON)
F R S C, F G S A
GEOLOGICAL SCIENCES, F.D. ADAMS BLDG
30 LAKESHORE RD, DORVAL QUE, POINTE CLAIRE QUE

GILL, PETER, DR 181-1771
BSC (SIRGEORGEWILLIAMS), M SC (MCG),
PHD (MCGILL)
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICRO IMMUNOLOGY, PATH INST
50 APPLE HILL RD, BAIE D URFE QUE 453-6190

GILLESPIE, G WILLIAM, MR 892-4730
BSC (UBC)
PHYSICAL EDUCATION
253 CLEMENT AVE APT 1, DORVAL QUE 631-6455

GILLESPIE, MARY E, MISS 392-5270
ACCOUNTING DEPT, ADMINISTRATION BLDG
1420 TOWERS ST, APT 319, MONTREAL QUE

GILLETT, MARGARET, PROF 392-8843
MACE/AUSTRALIA
BA (SYDNEY), D ED (SYDNEY),
M A (RUSSELL SAGE COL), DOCT EDUCN (COLUMBIA)
PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
25 FIRST AVE, TERRASSE VAUDREUIL QUE 453-3297

GILLETT, PETER GEORGE, DR
AB (ROCHESTER), MDCM (MCGILL)
M R C O G
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
M G H 1650 CEDAR AVE, MONTREAL 109 QUE
69 ROSEMOUNT CRESC, WESTMOUNT QUE 935-2866

GILLIES, DEIRDRE M, DR
MB CH B (EDINBURGH)
C R C P, C S P Q
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
QUEEN ELIZABETH HOSP, 2100 MARLOWE AVE,
MONTREAL 260 QUE
4998 BLVD DE MAISONNEUVE, MONTREAL 215 QUE

GILMOUR, JAMES MUCKLE, PROF 392-4718
M A (GLAS), PHD (U OF T)
ASSISTANT PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
1540 SUMMERHILL AVE, APT 409 MONTREAL QUE
935-4410

GILSON, DENIS F R, PROF 392-4457
B SC (LONDON), M SC (UBC),
PH D (BRITISH COLUMBIA)
ASSOCIATE PROFESSOR CHEMISTRY
ASSOCIATE DEAN FACULTY OF GRAD STUDIES & RES
CHEMISTRY DEPT, OTTO MAASS CHEM BLDG
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GIROLAMI, MARGARET ANN, MRS 392-3093
B A (MCGILL), BLS (TORONTO)
LIBRARIAN REDPATH LIBRARY
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GIROUD, CLAUDE J P, DR 937-8511
BA (STRASBOURG), M SC (MCG), PHD (MCGILL)
PROFESSOR UNIVERSITY CLINIC R V H
DEPT OF PEDIATRICS, 2300 TUPPER ST,
MONTREAL 108 QUE
1199 SEYMOUR AVE, MONTREAL 108 QUE

GITNICK, PHILIP J, DR
DDS (MCGILL)
FICD, FACD, F R C D (C)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
1414 DRUMMOND ST, MONTREAL 25 QUE
1414 DRUMMOND ST, MONTREAL QUE

GLASGOW, ANNA M C, MRS
LAW LIBRARY, NEW CHANCELLOR DAY HALL
1447 PAINTER CIRCLE, APT 301, ST LAURENT QUE

GLAY, ADOLPHE, DR
M D (U OF GENEVA)
LECTURER DIAGNOSTIC RADIOLOGY
1240 LUCERNE ROAD, MONTREAL 305 P QUE

GLEDHILL, ROBERT BRUCE, PROF 937-8511
MD (WESTERN ONTARIO)
F R C S (C)
ASSOCIATE PROFESSOR MCGILL-M C H SURGERY CLINIC
SURGERY MTL CHLD HOSP, 2300 TUPPER,
MONTREAL 108 QUE
152 JASPER AVE, MONTREAL 304 QUE 733-4645

GLEN, D JOAN, MRS 392-5497
B A (CAMBRIDGE), M A (CAMBRIDGE), M A (MCGILL)
SESSIONAL LECTURER GEOGRAPHY
BURNSIDE HALL
195 SHERWOOD RD, BEACONSFIELD QUE 695-4415

GLENN, JANE M, PROF 392-5250
BA (QUEENS), CSE (UNIVERSITE DE STRAS)
ASSISTANT PROFESSOR FACULTY OF LAW
OLD CHANC DAY HALL, 3644 PEEL ST
1212 PINE AVE, APT 605, MONTREAL 112 QUE

GLENN, PATRICK H, PROF 392-5250
BA (BRITISH COLUMBIA), LL B (QUEENS),
LL M (HARVARD), DES (STRASBOURG)
ASSISTANT PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
1212 PINE AVE, APT 605, MONTREAL QUE

GLOOR, PIERRE, DR 181-605
MD (BASLE(SWITZERLAND)), PH D (MCGILL)
CPSPQ
PROFESSOR NEUROPHYSIOLOGY LABORATORY
NEURO PHYSIOLOGIST LABORATORY-E E G
NEURO & NEUROSURGERY, M N I
17 STRATHCONA DR, TOWN OF MT ROYAL QUE 731-8894

GLORIEUX, FRANCIS H, DR 937-8511
MD (LOUVAIN), MSC (MONTREAL), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
4657 UPPER ROSLYN, MONTREAL 247 487-5516

GODARD, JEAN, MISS 392-5029
BSC NURSNG (QUEENS UNIVERSITY),
MSC NURSNG (MCGILL)
DIRECTOR COURSE FOR NORTHERN NURSES
NURSE DIRECTOR ARCTIC NURSING COURSE
SCHOOL FOR GRAD NURSES, MONTREAL GENERAL HOSP
15 BROCK AVE, MONTREAL WEST QUE 484-7281

GODFREY, ALLAN R, PROF 453-6580
BA (HON) (ALBERTA)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BUILDING
78 CHURCHILL ROAD, BAIE D URFE 850, QUEBEC
453-9487

GOLAN, JONATHAN S, DR 392-8295
BA (WISCONSIN), PHD (HEBREW UNIV)
VISITING ASST PROF MATHEMATICS
BURNSIDE HALL
2150 MAISONNEUVE BLVD W, APT 507 MONTREAL
931-8165

GOLD, ALLEN R, DR
B SC (MCGILL U), M SC (ENDO) (MCGILL),
M D C M (MCGILL U)
FRCP(C), FACP
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, M G H
1680 ST CLARE RD, TOWN OF MT ROYAL,
MONTREAL 305 QUE 482-3633

GOLD, MICHAEL JOSHUA, DR 937-6011
B SC (MCGILL), MDCM (MCGILL)
UNIVERSITY CLINIC M G H
5526 ASHDALE RD, APT 617,
COTE ST LUC 267 QUEBEC

GOLD, PHIL, DR
BSC (MCGILL), M SC (MCG), PH D (MCG)

MD (MCGILL)
FRCP(C)
ASSOCIATE PROFESSOR DEPARTMENT OF PHYSIOLOGY
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
PROFESSOR DEPT OF MEDICINE & CLIN MED
DEPT OF MEDICINE & CLIN, 1650 CEDAR AVE, MONTREAL 109 QUE
5705 PARKHAVEN AVE, MONTREAL QUE

GOLD, SIMON, DR
BSC (MCGILL), MSC (MCGILL), MDCM (MCGILL)
F A C S, F A C O G
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS&GYN JWSH GEN HOSP, 3775 COTE STE CATHERINE, MONTREAL 249 QUE
5845 COTE DES NEIGES RD, MONTREAL QUE 735-3131

GOLDBERG, LOUISE, MISS 392-5081
B A (MCGILL)
UNDERGRADUATE DEPT, REDPATH LIBRARY
235 SHERBROOKE ST W, APT 1714, MONTREAL 129 QUE

GOLDBERG, MARVIN, PROF
B A (MCGILL), M A (COLUMBIA UNIV)
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
4854 COTE DES NEIGES RD, APT 1205, MONTREAL QUE

GOLDBERG, NORMAN JOEL, DR 392-4720
BSC (MCGILL), MDCM (MCGILL)
F R C P C
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
4801 CIRCLE RD, MONTREAL 248 QUE 733-2232

GOLDBLATT, ROSE, PROF 392-4558
ARCM (LOND)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST WEST
342 ELM AVE, WESTMOUNT 215 QUE 932-8623

GOLDBLOOM, SHEILA, PROF 392-5050
BA (MT HOLYOKE), MSW (MCGILL)
CORP SOCIAL WORK
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
SCHOOL OF SOCIAL WORK, 3506 UNIVERSITY ST
5 GROVE PARK, WESTMOUNT QUE 933-5079

GOLDENBERG, MARVIN, DR
B SC (MCGILL), M D C M (MCGILL)
F R C P
LECTURER DIAGNOSTIC RADIOLOGY
DIAG RAD JWSH GEN HOSP, 3775 COTE STE CATHERINE MONTREAL 249 QUE
5602 CASTLEWOOD, COTE ST LUC 269 QUE 342-3111

GOLDENBERG, SHIRLEY, MRS 392-4726
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
566 ROSLYN AVE, MONTREAL 217 QUE 486-5035

GOLDSMITH, HARRY LEONARD, DR 937-6011
BA (OXFORD), B SC (OXON), M A (OXON)
PH D (MCGILL)
ASSOC PROFESSOR OF EXPERIMENTAL MEDICINE
RESEARCH ASSOCIATE UNIVERSITY CLINIC M G H
POST DOCTOR FELLOW CHEMISTRY
PROFESSOR DEPT OF MEDICINE & CLIN MED
DEPT OF MEDICINE & CLIN, 1650 CEDAR AVE, MONTREAL 109 QUE
215 BEDBROOKE AVE, MONTREAL 28 QUE

GOLDSMITH, TRUDIS E, PROF 392-5090
PH D (COLOGNE)
ASSOCIATE PROFESSOR GERMAN
HUGESSON HOUSE
3445 RIDGEWOOD AVE, APT 312, MONTREAL 247 QUE 341-6366

GOLDSTEIN, MELVIN E, PROF 392-4645
AB (INDIANA UNIVERSITY),
PHD (INDIANA UNIVERSITY)
ASSISTANT PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
52 ACADAMY RD, APT 101 WESTMOUNT QUE 933-9982

GOLDSTEIN, OLGA, MRS 453-6580
DEPARTMENT OF AGRIC ENGI.
MACDONALD COLLEGE 800 PQ
160 SOMMERHILL, DOLLARD DES ORMEAUX PQ 684-6443

GOLDSTEIN, S M, DR 181-1742
BSC (MCGILL), MD (MCGILL)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MED, UNIV CLINIC, R V H
20 RENFREW AVE, WESTMOUNT QUE

GOLLNER, EDITH, MRS 453-6580
LIBRARY MACDONALD COLL, MACDONALD COLLEGE 800, QUEBEC
10 EAST COTTAGE, MACDONALD COLLEGE 800 PQ 453-2472

GOMES, FRANKLIN GILBERT, MR
BSC (MCGILL), MD (TORONTO)
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
3250 FOREST HILL, APT 1502, MONTREAL QUE

GONDA, ANDREW, DR 181-390
MD (BUDAPEST), MD (BUDAPEST)
F R C P, L M C C
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H
5500 MACDONALD, APT 702, MONTREAL QUE 481-0740

GOODALL, R G W, DR
B A (MCGILL), M D C M (MCGILL), M SC (MCGILL)
DIP SURGERY (MCGILL)
C P S Q, R C P S, F A C S
LECTURER DEPARTMENT OF SURGERY
SURGERY QUEEN ELIZ HOSP, QUEEN ELIZABETH HOSP, 2100 MARLOWE AVE
QUEEN ELIZABETH HOSP, 2100 MARLOWE AVE, MONTREAL QUE

GOODFRIEND, LAWRENCE, DR 181-1797
BSC (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
RESEARCH ASSOCIATE UNIVERSITY CLINIC R V H
UNIV CLIN, 11 MED R V H
860 DORSET AVE, LAVAL QUE 688-5415

GOPNIK, IRWIN, PROF 392-8218
BA (UNIV OF PENNA), M A (PENN),
PHD (UNIV OF PENNA)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BUILDING
1011 HABITAT 67, MONTREAL QUE 861-4538

GOPNIK, MYRNA, PROF 392-5839
BA (U OF PENNSYLVANIA), M A (PENN),
PH D (U OF PENNSYLVANIA)
ASSOCIATE PROFESSOR LINGUISTICS
DEPT OF LINGUISTICS, 3465 PEEL ST
1011 HABITAT 67, MONTREAL 104 QUE 861-4538

GORDON, ALEC L, DR
B SC (MCGILL), MDCM (MCGILL)
FRCP(C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
1610 PINE AVE W, MONTREAL 109 QUE

GORDON, COLIN DOUGLAS, PROF 392-5220
BA (ALBERTA), M A (MICH), PHD (MICHIGAN)
ASSOCIATE DEAN CLASSICS
CLASSICS DEPT, STEPHEN LEACOCK BLDG
144 BROADVIEW AVE, POINTE CLAIRE QUE 697-1779

GORDON, DONALD, DR 392-4925
BSC (ACADIA), DDS (MCGILL)
VISITING LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND ST, STE 1126
1414 DRUMMOND ST, SUITE 1126, MONTREAL 107 QUE

GORDON, ELLEN R, DR 937-6011
BSC (SASKATCHEWAN), M SC (ROCH),
PHD (ROCHESTER)
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
U MED CLINIC MTL GEN HOS, 1650 CEDAR AVE, MONTREAL 109 QUE
492 TOWNSHEND ST, ST LAMBERT QUE

GORDON, ESMOND, DR
B SC (MCGILL), M D (GENEVA)

C R C P S, C P S Q
LECTURER DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY MGH, 1650 CEDAR AVE
1650 CEDAR AVE, MONTREAL QUE

GORDON, IRENE, MRS 392-5050
BA (LONDON), TEACHERS DIP (LONDON)
M S W
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
36 ROXBOROUGH AVE, WESTMOUNT 217 QUE

GORDON, JULIUS, DR 392-4859
B SC (SIR GEORGE WILLIAMS), PH D (MCGILL)
ASSOCIATE PROFESSOR
DEPT OF EXPERIMENTAL SURGERY
ASSISTANT PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
DEPT MICROBIOLOGY - IMMU, DONNER BUILDING
636 VICTORIA AVE, MONTREAL 217 QUE 481-5435

GORDON, LAWRENCE A, PROF
B S (STATE UNIV OF N Y AT ALBANY),
M B A (S U N Y AT ALBANY)
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
41 BEACON RD, KIRKLAND P Q 697-5804

GORESKY, CARL ARTHUR, MR 937-6011
BSC (MCGILL), MD (MCGILL), PH D (MCGILL)
F R C P(C)
M R C FELLOW DEPT OF MEDICINE & CLIN MED
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
PROFESSOR DEPT OF MEDICINE & CLIN MED
UNIV MED CLIN M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
34 BALLANTYNE AVE, MONTREAL WEST QUE

GORING, DOROTHY M, MRS 392-5931
SCHOOL OF LIBRARY SC, 3459 MCTAVISH
84 BAYVIEW AVE, POINTE CLAIRE QUE

GOUGEON, HELEN V, PROF 392-8804
BA (MARIANOPOLIS U OF M), B ED (S J T C),
MA (OTTAWA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST,
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933-2560

GOWEN, DOROTHY E., MISS 392-5061
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GOWRISANKARAN, CHANDRA, MRS
BA HONS (BOMBAY), MA (BOMBAY)
LECTURER MATHEMATICS
BURNSIDE HALL
449 WOLSELEY, MONTREAL WEST 264 QUE

GOWRISANKARAN, KOHUR N, PROF 392-5972
BA (HON) (MADRAS), M A (MADR),
PHD (BOMBAY T I F R)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
149 RADCLIFFE, MONTREAL W 264 QUE 484-5796

GRACE, JOHN R, PROF 392-5451
B E SC (WESTERN ONTARIO), PH D (CAMBRIDGE)
C I Q
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
507 DE GASPE, NUN S ISLAND, VERDUN QUE 767-0323

GRAD, BERNARD, PROF 181-1623
B SC (MCGILL), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I, 1025 PINE AVE W
4936 KENT AVE, MONTREAL QUE

GRAHAM, ANGUS F, PROF 392-4239
BASC (TORONTO), M SC (TOR), PH D (EDIN)
DSC (EDINBURGH)
DEPARTMENT CHAIRMAN DEPARTMENT OF BIOCHEMISTRY
PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY, MCINTYRE MED BLDG
447 STRATHCONA AVE, WESTMOUNT QUE 937-1954

GRAHAM, BERNARD, DR 181-592
B A (DALHOUSIE), B SC (DAL),
M D C M (DALHOUSIE)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
REGISTRAR MEDICAL RECORDS
MEDICAL RECORDS, M N H
492 STRATHCOWN AVE, MONTREAL 217 QUE

GRAHAM, CONRAD E W, MR 392-4781
MCCORD MUSEUM
3525 DUROCHER, APT 80, MONTREAL QUE

GRAHAM, JIMMIE, MR 392-8292
RESEARCH ASSISTANT MATHEMATICS
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
751A CHAMPAGNEUR ST, OUTREMONT QUE

GRAHAM, LORNA F, MISS 392-4706
DEPARTMENT OF PSYCHIATRY, AMI 509 PINE AVE W
2147 MARLOWE AVE, APT 2, MONTREAL QUE 486-7862

GRAHAM, PETER E., MR
BA (MCGILL), B C L (MCG)
BAR DE QUE (MC)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 600 DORCHESTER W 3RD FL,
MONTREAL 101 QUE
600 DORCHESTER BLVD W, 3RD FLOOR,
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GRANT, PETER, MR 392-4659
BA (CANTAB), PH D (UBC)
ASSOCIATE PROFESSOR BIOLOGY
STEWART BIOLOGY BLDG
466 GROSVENOR AVE, WESTMOUNT QUE

GRANT, WILLIAM FREDERICK, PROF 453-6580
B A (MCMASTER UNIVERSITY), M A (MCM),
PH D (UNIV OF VIRGINIA)
F L S
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
20722 GAY CEDARS DR, BAIE D URFE QUE 453-8053

GRANTHAM, GEORGE W, PROF 392-5235
B A (ANTIOCH), PHD (YALE)
ASSISTANT PROFESSOR ECONOMICS
POLITICAL SCIENCE, STEPHEN LEACOCK BLDG
3483 LAVAL APT 8, MONTREAL 130 QUE

GRATTON, LAURENT, DR
B A (LOYOLA), P C B (MONTREAL), M D (MONTREAL)
L M C C, C R C P (C)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
574 ROSLYN AVE, WESTMOUNT 217 QUE

GRAUER, HARRY, DR
MD (WESTERN ONTARIO)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE STE CATHERINE,
MONTREAL 249 QUE
636 SYDENHAM AVE, WESTMOUNT 267 QUE 737-5183

GRAVELINE, CLAUDE, DR
B A (MONTR), M D (MONTR)
LECTURER THERAPEUTIC RADIOLOGY
ROYAL VICTORIA HOSP
3555 BERRI ST, APT 910, MONTREAL 132 QUE
843-7305

GREEN, CHRISTOPHER, PROF 392-5217
BA (UNIV OF CONNECTICUT), M A (CONNECTICUT),

PH D (UNIV OF WISCONSIN)
ASSOCIATE PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG

GREEN, PATRICIA M, MISS 392-8851
DIP ED (CAMBRIDGE). DIP GEOG (LONDON).
M SC (ILLINOIS)
SESSIONAL LECTURER FACULTY OF EDUCATION
3700 MCTAVISH
7 COTE STE CATHERINE, APT 402, MONTREAL 154 PQ
274-3188

GREENBERG, LEONARD, DR 392-5789
B SC (MCGILL). MSC (MCGILL). PHD (MCGILL)
LECTURER DEPT OF EXPERIMENTAL SURGERY
DONNER BUILDING
50 WILLOWDALE AVE, MONTREAL 257 QUE

GREENE, FRANK P, PROF 392-8888
B A (U OF MICHIGAN). M A (UNIV MICHIGAN).
PH D (U OF MICHIGAN)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
231 PERCIVAL AVE, MONTREAL 263 QUE 487-7566

GREENGROVE, ANNE, MISS
ADMIN ASST I CTR FOR DEVLPNG AREA STUDIES
CTR FOR DEVLPNG AREA STU, 3437 PEEL ST
4669A SOUVENIR ST, CHOMEDEY LAVAL 688-4237

GREENWALD, HERBERT, DR
B SCIENCE (MCGILL U). D D S (MCGILL)
ODSA
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 5300 COTE DES NEIGES, MONTREAL QUE
5300 COTE DES NEIGES RD, STE 540 MONTREAL QUE

GREENWOOD, F A H, DR
BSC (MCGILL). MD CM (MCGILL)
F R C S (C). C S P Q
LECTURER DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE
3550 COTE DES NEIGES RD, MONTREAL QUE

GREGOIRE, PIERRE A, DR
BA (COLLEGE STE MARIE).
B PH (INST DE PSYCHOLOGIE).
L PH (MONTREAL). PHD (U OF MONTREAL)
UNIV HEALTH SERVICES, 517 PINE AVE
7532 VERDIER ST, ST LEONARD QUE

GREISMAN, JOHN, DR
M D (U OF T)
F R C S(C)
LECTURER DEPARTMENT OF SURGERY
UROLOGY JWSH GEN HOSP
330 SPADINA ROAD, APT 307, TORONTO ONTARIO

GRENIER, DENISE, MISS 392-4901
CTR FOR CONTINUING EDUC, 772 SHERBROOKE ST W
3553 DUROCHER ST, APT 306, MONTREAL 130 QUE

GRICE, REGINALD HUGH, PROF 392-5798
BA (CAMBRIDGE). M A (CANTAB). PHD (ILLINOIS)
ASSOCIATE PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
33 LAKESHORE RD, BEACONSFIELD 870 QUE 695-2162

GRIER, JOAN, MRS 392-4837
B A (DENVER)
PHYSICS, FOSTER RAD LAB
1100 MCGREGOR AVENUE, APT 1212,
MONTREAL 112 QUE 844-6176

GRIFFIN, FRANCES, MRS 392-8813
FACULTY OF EDUCATION, 3700 MCTAVISH
2055 CLOSSE ST, MONTREAL QUE 931-4830

GRIFFITH, IRVIN, MR 392-8294
PROGRAMMER MANAGEMENT SYSTEMS
F CYRIL JAMES BLDG
780 DES SEIGNEURS ST, MONTREAL 100 QUE

GRIFFITH, MARGARET R, MISS 392-5292
REGISTRAR S OFFICE, ADMINISTRATION BLDG
3440 DUROCHER, APT 409 MONTREAL 130 QUE

GRIFFITHS, HARRY E, PROF 392-4729
B COMM (MCGILL). M ARTS (MIDDLEBURY)
ASSOCIATE PROFESSOR PHYSICAL EDUCATION
DIRECTOR OF ATHLETICS
ATHLETICS DEPT, GYMNASIUM
3606 MARLOWE AVE, MONTREAL QUE 488-7098

GRIFFITHS, MARGARET H, PROF 392-5036
B A (W ONT). DIP SW (TOR). M A (CHIC)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
2 WESTMOUNT SQUARE, APT 704, MONTREAL 216 QUE
932-1839

GRIMES, DAVID, MR 392-5853
BLDGS & GRDS DEPT, 840 MACGREGOR ST
1625 CRAWFORD BRIDGE AVE, VERDUN QUE

GRLEBILISZEWSKI-COMBS, GEORGE, D
M D (POLAND)
C P S Q. R C P S. Q C P S
DEMONSTRATOR SENIOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, MTL CHILDRENS HOSPITAL
1445 KINGSLEY RD, APT 140, DORVAL QUE

GROSSER, ARTHUR E, PROF 392-4456
AB (CORNELL UNIV). PH D (UNIV OF WISCONSIN)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
HABITAT 67, CITE DE HAVRE, MONTREAL QUE

GROSSMAN, ARNOLD, DR 932-1732
MDCM (MCGILL)
F R C P S. C P P S(Q)
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
OTOLARYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3764 COTE DES NEIGES, MONTREAL 109 QUE 935-9949

GROSVENOR, TIMOTHY, MR
B ARCH (MCGILL). M ARCH IN URBAN (HARVARD)
LECTURER SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
39 PROSPECT ST, MONTREAL 215 PQ

GRUZLESKI, JOHN E, PROF 392-5702
BSC (QUEENS). M SC (QUEENS). PHD (TORONTO)
ASSOCIATE PROFESSOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
3360 RIDGEWOOD, APT 9, MONTREAL QUE

GUADAGNINO, SANDRA, MRS 392-5981
FAC. OF MANAGEMENT, BRONFMAN BLDG
8775 GIROUX ST, VILLE LASALLE QUE 365-8416

GUERRA, JULIO F, DR 937-6011
BA (INST DE PONTEVEDRA).
M D (SANTIAGO DE COMPOSTELA)
ARPQ
ASSISTANT PROFESSOR THERAPEUTIC RADIOLOGY
MTL GEN HOS 1650 CEDAR, MONTREAL 109 P Q
222 BERLIOZ, APT C NUN S ISLAND,
MONTREAL 201 QUE 767-8491

GUILLAUME, SANDRA A, MISS 392-5356
B A (S G W U)
ASSISTANT ARCHIVIST UNIVERSITY ARCHIVES
ARCHIVES, MCLENNAN LIBRARY
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866-9941

GUIRAO, CHRISTIANE, DR 392-5464
DIPL ENG (FRANCE). M SC (FRANCE).
PH D (CALIFORNIA)
ASST PROF DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
3645 SHERBROOKE ST E, APT 803, MONTREAL 401 QUE

GULUZIAN, LEVON, MR 392-3029
BSC (U OF ALEXANDRIA)
DEPARTMENT OF BIOCHEMIST, MCINTYRE MED SCI
12081 DAIGLE ST, NEW BORDEAUX, MONTREAL 390 QUE
334-3989

GUNDJIAN, ARSHAVIR A, PROF 392-5411
BACH ENGIN (ALEXANDRIA). PHD (PENNSYLVANIA)
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
5501 ADALBERT ST, APT 216, COTE ST LUC 481-5945

GURD, CHARLES C, MR 392-4806
BA (MCGILL)
MIDDLE MANAGEMENT 1 GRADUATE SOC OF MCGILL
4609 HUTCHISON APT 6, MONTREAL QUE

GURR, FIONA M, MRS
BSC (HON) ()
DEMONSTRATOR PHYSICS
MACDONALD PHYSICS BLDG
545 CUSSON ST, ST BRUNO QUE 653-3977

GURUSWAMI, VERENA, MRS 392-8297
DIPL MATH (ZURICH),
DIPL MATH ETH (SWISS FED INST)
RESEARCH ASSISTANT MATHEMATICS
LECTURER MATHEMATICS
MATHEMATICS, BURNSIDE HALL
111 DE LA BARRE APT 7A, LONGUEUIL QUE 670-7284

GUTBRODT, ERIKA J, DR
B A (LINDENWOOD), PH D (VIENNA)
SESSIONAL LECTURER PSYCHOLOGY
STEWART BIOLOGY BLDG
9245 LASALLE BLVD APT 5, LASALLE QUE

GUTHRIE, RODERICK I, PROF 392-5708
B SC (ENG) (IMPERIAL COLLEGE),
PH D (IMPERIAL COLL LONDO)
ASSOCIATE PROFESSOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
220 BERLIOZ, APT 107 NUN S ISLAND, MONTREAL QUE

GUTKIND, PETER C W, PROF 392-8049
B A (EARLHAM), M A (CHIC), PHD (AMSTERDAM)
PROFESSOR ANTHROPOLOGY
ANTHROPOLOGY, LEACOCK BLDG
23 WINCHESTER AVE, WESTMOUNT QUE 488-5915

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GUTTMAN, FRANK M, DR
LECTURER DEPARTMENT OF SURGERY
SURGERY, JEWISH GEN HOS MTL 249,
3775 CTE ST CATHERINE
3517 VENDOME AVE, MONTREAL 260 QUE 739-8550

GUTTMAN, HERTA ANN, DR
BA (MCGILL), M D (GENEVA UNI)
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
3517 VERDUN AVE, MONTREAL 260

GUTTMANN, RONALD, DR 181-378
BA (MINNESOTA), BS (MINNESOTA),
MD (MINNESOTA)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
EXP MED & SURGERY, TRANSPLANTATION UNIT, R V H
19 ABERDEEN AVE, MONTREAL QUE

GUYDA, HARVEY, DR 937-8511
B SC (MANITOBA), M D (MANITOBA)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
7 BANSTEAD ROAD, MONTREAL WEST 264 QUE 487-6526

GYAPAY, EDE JANOS GUSZTAV, MR 453-6580
BSC (AGR) (DEBRECEN), MSC(AGR)STUD (BUDAPEST)
DEPT OF HORTICULTURE, MACDONALD COLLEGE 800,
QUEBEC
NO 4 EAST COTTAGES, MACDONALD COLLEGE QUE
453-4712

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PHD (ZUERICH), PH D (ZURICH), PHD (ZUERICH)
ASSOCIATE PROFESSOR GERMAN
DEPT OF GERMAN, HUGESSEN HOUSE
SCHLOSSERGASSE 2, 8001 ZURICH, SWITZERLAND

HABBICK, ANNE E, MRS 392-5046
B A (TRINITY COLLEGE)
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HABIB, NABIL, MR 392-5486
DEPT OF CHEMICAL ENG, MCCONNELL ENG BLDG
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351-0048

HACKER, PETER, DR 181-1850
MD (OTTAWA)
LECTURER UNIVERSITY CLINIC R V H
MEDICINE & CLINIC MED, DERMATOLOGY 5 MED RVH
1212 PINE AVE WEST, APT 1404, MONTREAL 843-3029

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B A (BISHOPS)
MIDDLE MANAGEMENT 2
FACULTY OF GRAD STUDIES & RES
GRADUATE STUDIES & RES, DAWSON HALL
345 ELLERTON AVE, MONTREAL 304 QUE 738-1533

HAGGETT, FRANCES, MRS 392-4677
B SC (MCGILL)
DEMONSTRATOR SENIOR BIOLOGY
STEWART BIOL BLDG
4501 SHERBROOKE ST W, APT 6C, MONTREAL 933-3123

HAGUE, NORA, MISS 392-4781
MCCORD MUSEUM, 690 SHERBROOKE ST W
582 LANSDOWNE AVE, WESTMOUNT, MONTREAL 217 QUE

HAHLO, HERMAN ROBERT, PROF 392-5101
LLD (WITWATERSRAND)
DR JUR (HALLE), LLD (RAND)
DIRECTOR INST OF COMP FOREIGN LAW
PROFESSOR INST OF COMP FOREIGN LAW
FACULTY OF LAW, CHANCELLOR DAY HALL
IMPERIAL HOUSE, 3445 DRUMMOND ST,
APT 904 MONTREAL 112 QUE 845-9470

HALE, BURT B, DR
BSC (MCGILL), MD CM (MCGILL)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
ROYAL VICTORIA HOSPITAL
70 STRATFORD RD, HAMPSTEAD QUE

HALE, JEANNE, MRS 392-5104
FACULTY OF LAW, CHANCELLOR DAY HALL
4411 HINGSTON AVE, N D G MONTREAL QUE 482-3441

HALE, THOMAS R, DR
BSC (MCGILL), MD (MCGILL)
FRCP(C), C S P Q
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
224 MAPLE AVE, ST LAMBERT QUE

HALL, C WAYNE, DEAN 392-8814
BA (BISHOPS), MA (BISHOPS)
PROFESSOR FACULTY OF EDUCATION
DEAN FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
83 ST ANDREWS ROAD, BAIE D URFE QUE 453-2044

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MONTREAL QUE

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MONTREAL 458 QUE 325-5367

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PARASITOLOGY INST, MACDONALD COLLEGE 800, QUE
150 4TH BLVD, TERRACE VAUDREUIL QUE 453-2240

HALL, MARY MARGARET, PROF 392-5936
BA (MONTREAL), BLS (MCG), MLS (MCGILL)
Q L A
ASSOCIATE PROFESSOR
GRAD SCHOOL OF LIBRARY SCIENCE
GRAD SCH OF LIB SCI, MCLENNAN LIBRARY
332 BERWICK AVE, TOWN OF MT ROYAL QUE 342-3328

HALPENNY, GERALD WINTER, DR
BSC (MCGILL), MDCM (MCGILL)
FRCP(C), FACP
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED M G H, 1650 CEDAR AVE,

MONTREAL 109 QUE
616 GROSVENOR AVE, WESTMOUNT QUE 481-7580

HALPIN, JOANNA, MISS 392-4421
BA (MCGILL)
MCGILL-QUEENS UNIV PRESS, BURNSIDE HALL
2060 SHERBROOKE ST WEST, APT 6, MONTREAL 109 PQ

HAMBRAEUS, BENGT, PROF 392-4526
FIL KAND (UPSALA), FIL LIC (UPSALA)
ASSOCIATE PROFESSOR FACULTY OF MUSIC
318 BROOKFIELD AVE, MONTREAL QUE 733-8414

HAMILTON, DOROTHY, MRS 392-4870
ASSISTANT MANAGER MCGILL BOOK STORE
BOOKSTORE, 3416 MCTAVISH ST
317 PARKWOOD CIRCLE, DORVAL QUE

HAMILTON, PETER YOUNG, PROF 453-6580
BSC (MACDONALD), MSC (MAINE)
CAPQ
ASSOCIATE PROFESSOR
DIR OF DIPLOMA COURSE AGR
ANIMAL SCIENCE, MACDONALD COLLEGE 800, QUEBEC

HAMILTON, RICHARD F, PROF 392-4802
BA (CHICAGO), M A (COLUMBIA), PHD (COLUMBIA)
PROFESSOR SOCIOLOGY
LEACOCK BLDG
473 ARGYLE AVE, WESTMOUNT QUE 933-8824

HAMPSON, JOHN GREVILLE, MR 392-4230
B COM (MCG)
C A
BUSINESS OFFICER FACULTY OF MEDICINE
OFFICE OF DEAN, MCINTYRE MED BLDG
P O BOX 38, DALKEITH ONT 874-2603

HAMPSON, LAWRENCE G, DR
BSC (MCGILL), M SC (MCG), MDCM (MCGILL)
F R C S (C), FACS
ASSOCIATE PROFESSOR MCGILL-M G H SURGERY CLINIC
MONTREAL GEN HOSP 947, 1650 CEDAR AVE,
MONTREAL 109 QUE
106 SUNNYSIDE AVE, MONTREAL QUE

HANCZYK, MARGARET S, MRS 392-5406
B A (YORK UNIV)
BLACKER-WOOD LIBRARY, REDPATH LIBRARY
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HANDA, JAGDISH, PROF 392-5248
B SC (LONDON SCH OF ECON),
PH D (JOHN HOPKINS U)
ASSOCIATE PROFESSOR ECONOMICS
ECONOMICS DEPT, STEPHEN LEACOCK BLDG
406 PINE AVE W, APT 45 MONTREAL QUE 288-7716

HANIGSBERG, WILLIAM B, PROF 392-4752
BA (WISCONSIN), MA (NORTHWESTERN)
ASSISTANT PROFESSOR SOCIOLOGY
STEPHEN LEACOCK BLDG
2135 ST MARC ST, APT 9, MONTREAL 108 QUE

HANJENKOFF, TANYA, MRS 392-5260
ACCOUNTING DEPT, ADMINISTRATION BLDG
4527 MELROSE AVE, MONTREAL 261 PQ 481-1436

HANSEBOUT, ROBERT ROGER, DR 181-584
MD (U OF WESTERN ONT), MSC (MCGILL)
F R C S (C)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
FACULTY OF MEDICINE, M N I
4850 COTE DES NEIGES RD, APT 2002 MONTREAL 247 288-7320

HANSON, ROBERT E, DR
DEMONSTRATOR SENIOR DIAGNOSTIC RADIOLOGY
R V H
3140 GLENCOE AVE, MONTREAL 301 QUE

HARASYMOWYCZ, GEORGE, DR 392-4927
B SC (LOYOLA), DIP (MCGILL), D D S (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
6565 BLVD L ASSOMPTION, MONTREAL 410 QUE

HARBERT, R G M, DR
B SC (MCG), MD CM (MCG)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
1538 SHERBROOKE ST W, MONTREAL 109 QUE

HARD, LYNN REAGAN, MR 392-5346
B A (LONG BEACH STATE), M SL S (S CAL)
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HARDIE, SUSAN, MRS 392-4216
AVIATION MED RESCH UNIT, MCINTYRE MED SCI CNTR
2175 DE MAISONNEUVE WEST, APT 1401,
MONTREAL 108 QUE 931-6847

HARFLETT, DEBORAH, MISS 392-3056
BA (MCGILL)
TEACHING ASSISTANT HISTORY
HISTORY, LEACOCK BLDG
228 ALLION AVENUE, LASALLE P Q

HARLEY, JOHN KENELM, PROF 392-8848
MA (ST ANDREWS), ED M (HARV), ED D (HARVARD)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
COTE ST CHARLES RD, BOX 369, HUDSON HEIGHTS QUE 236-5902

HARMS, WOLFGANG, PROF
PH D (U OF KIEL)
VISITING PROFESSOR GERMAN
1001 SHERBROOKE ST W
D-205 HAMBURG 80, SCHULENBURGRING 36,
WEST GERMANY

HARNOIS, GASTON P, DR
M D (U OF OTTAWA)
C P S Q, R C P S(C)
LECTURER DEPARTMENT OF PSYCHIATRY
6875 LASALLE BLVD, VERDUN QUE
C/O DOUGLAS HOSP, 6875 LASALLE BLVD, VERDUN QUE

HARPER, DOROTHY, MRS 392-5452
BA (EMMANUEL COLLEGE), MSC (APPL) (MCGILL)
CPPQ
HEALTH SERVICE, 517 PINE AVE WEST
105 RIVE FRANCOIS, ILE DES SOEURS,
MONTREAL 201 PQ 767-9408

HARPP, DAVID NOBLE, PROF 392-5791
AB (MIDDLEBURY COLLEGE), MA (WESLEYAN),
PHD (UNIV OF NORTH CAR)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
135 MERTON AVE, ST LAMBERT QUE 672-5782

HARPUR, ELEANOR R M, DR 937-8511
ARTS-BACH (SMITH COLLEGE), MD CM (MCGILL)
FRCPS
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
420 LANSDOWNE AVE, WESTMOUNT 217 QUE 937-5441

HARPUR, ROBERT P, PROF 453-6580
B SC (UNIV OF NEW ZEALAND), M SC (MCG),
PH D (MCGILL)
ASSOCIATE PROFESSOR DEPT OF PARASITOLOGY
PARASITOLOGY, MACDONALD COLLEGE 800, QUE
420 LANSDOWNE AVE, WESTMOUNT 217 QUE 481-7020

HARRIGAN, HELEN V, MISS 453-6580
B A (S G W U)
AGRICULTURE, MACDONALD COLLEGE 800, QUEBEC
LAIRD HALL APT 197, MACDONALD COLLEGE QUE 453-3973

HARRIS, JUSTINE G, PROF 392-8880
B A (SWARTHMORE COLLEGE), MED (U B C)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, COUNSELLOR EDUCATION,
3700 MCTAVISH STREET
11 WINCHESTER AVE, WESTMOUNT 215 QUE,
MONTREAL QUE 392-8880

HARRIS, PHILIP J, PROF 392-5986
B SC (ENG) (MANITOBA), M ENG (MCG),
PH D (MCGILL)
M E I C, M A S C E, M A C I, ENG
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG

4600 MARIETTE AVE, MONTREAL 262 QUE 482-6967

HARRIS, RICHARD, PROF 392-4895
MB CHB (BIRMINGHAM), F F R (LONDON), PHD (BRISTOL)
VISITING PROFESSOR PHYSICS
STRATHCONA MED BLDG
116 RUE DE TOURAINE, PREVILLE, ST LAMBERT PQ 671-4520

HARROD, JOHN FRANK, PROF 392-4454
BSC (BIRMINGHAM ENGLAND), PHD (BIRMINGHAM ENGLAND)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
500 DE GASPE APT 110, NUNS ISLAND VERDUN QUE 761-2803

HARROLD, ALAN JOHN, DR 392-5445
BSC (MCGILL), MD CM (MCGILL)
HEALTH SERVICE-MCGILL, MACDONALD COLLEGE 800, QUE
128 SHERATON DRIVE, MONTREAL WEST QUE 488-2311

HARROP, PAUL NORMAN., MR. 392-5853
PHYSICAL PLANT DEPT, 840 MACGREGOR ST
4323 MARLIN CRESC, PIERREFONDS QUE 626-6706

HARROW, MARTIN, DR
B SC (MCG), M SC (MCG), PH D (MCG)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
5700 CAVENDISH BLVD, APT 107 MONTREAL 265 PQ 489-9826

HARVEY, MONICA, PROF 392-4615
BA (MCGILL), PHD (MADRID)
ASSOCIATE PROFESSOR SPANISH
SPANISH LANG & LIT, 3491 PEEL ST
4021 GREY AVE, MONTREAL QUE

HARVEY, ROBERT F, DR 937-6011
DDS (MCGILL)
FRCD(C)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA MED BLDG
474 STRATHCONA AVE, WESTMOUNT QUE

HARVEY, WARREN, PROF 392-5155
B A (COLUMBIA(N Y))
ASSISTANT PROFESSOR PHILOSOPHY
772 SHERBROOKE ST W, MONTREAL QUEBEC
2825 DARLINGTON PLACE, MONTREAL QUE

HASKEL, BARBARA, PROF 392-5249
B A (JACKSON COLL TUFTS), PHD (HARVARD)
ASSISTANT PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
3590 RIDGEWOOD, APT 308 MONTREAL 247 QUE 392-5249

HAUSER, WOLFGANG, PROF 181-1781
M D (KARL-FRANZENS U GRAZ)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
3 ALBION ROAD, MONTREAL 254 QUE 344-3076

HAWKINS, DAVID G, DR 937-6011
MD (DALHOUSIE)
F R C P (C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
UNIV CLIN MTL GEN HOSP, 1650 CEDAR AVE
534 GROSVENOR AVE, WESTMOUNT 217 QUE 937-5174

HAWKINS, MARILYN, MISS 392-4513
B A (MCGILL)
REDPATH LIBRARY, CIRCULATION-RESERVES
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HAWKINS, STUART C, PROF 392-8863
BA (MCGILL), M A (MCG), D DE L UNV (PARIS)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
R R 1, HUDSON QUE 489-9223

HAWKINS, T EARL, MR
SESSIONAL LECTURER DEPT OF MINING ENGINEERING
MINING ENG & APP GEOPHYS, MCCONNELL ENG BLDG
3465 REDPATH ST, APT 503, MONTREAL 109 QUE

HAWORTH, LORNA H, PROF 392-8847
BA (SIR GEORGE WILLIAMS), MA (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
62 DEVON RD, BEAUREPAIRE QUE 697-6720

HAYAKAWA, SHUN-ICHIRO, DR 392-4852
B SC (WASEDAU TOKYO), PH D (FLORIDA STATE)
PROFESSIONAL ASSOC PHYSICS
PHYSICS, FOSTER RADIATION LAB
8509 DAVID BOYER, LASALLE QUE 363-4514

HAYES, RALPH, MR 392-5819
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HAZEL, JOSEPH J, DR
ACTING CHAIRMAN DEPT THERAPEUTIC RADIOLOGY R.V.H.
RADIOLOGY DEPT RVH, 687 PINE AVE W, MONTREAL 112 QUE

HAZUCHA, MILAN, DR 392-3084
M D (COMENIUS U BRATISLAVA)
LECTURER DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY, MCINTYRE MED BLDG
155 DEGUIRE BLVD, APT 506, ST LAURENT QUE 392-3084

HEARSEY, EDNA P, PROF 392-8845
DIP ED (SOUTHAMPTON), MASTER ART (SIR GEORGE WILLIAMS)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
14 COTE ST CATHERINE, OUTREMONT QUE 697-6763

HEAVYSEGE, HECTOR, MR 181-1829
PERSONNEL DIRECTOR GENERAL ADMINISTRATION
SR NON-ACADEMIC RANK NEUROLOGY & NEUROSURGERY ADMINISTRATION, M N H
294 34 AVE, LACHINE QUE 637-5650

HEBB, DONALD O, DR 392-4609
DSC (CHI WAT YORK MCM), LLD (DAL QUEENS UWO)
DHL (NORTH EASTERN)
BA (DALHOUSIE), M A (MCG), PHD (HARVARD)
F R S, F R S C
PROFESSOR PSYCHOLOGY
STEWART BIOL BLDG
21 CURZON ST, MONTREAL W QUE 481-8366

HEBERT, MARCEL, DR 933-4722
BA (U DE MONTREAL), DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1509 SHERBROOKE W, MONTREAL 109 QUE
1509 SHERBROOKE ST W, SUITE 3 MONTREAL 25 QUE 747-3963

HEDGCOCK, FREDERICK T, PROF 392-5806
BSC (UNIV OF MANITOBA), MSC (UWO), PHD (UWO)
PROFESSOR PHYSICS
EATON LAB
956 MONCRIEFF RD, TOWN OF MOUNT ROYAL QUE 733-0998

HEIDL, SHIRLEY EILEEN, MISS 453-6580
B SC (ACADIA U)
CDA, QDA
DINING DEPT, MACDONALD COLLEGE 800, QUE
P O BOX 283, MACDONALD COLLEGE 800, QUE 453-5545

HEILIG, MENDEL LOEB, PROF 392-8823
BA (WASHINGTON COLLEGE), MA (CONNECTICUT)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST, MONTREAL QUE
3445 HUTCHISON APT 1003, MONTREAL 130 PQ 843-8431

HELLER, IRVING HENRY, DR 845-3812
B SC (MCG), MD CM (MCG), M SC (MCG), PH D (MCG)

ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, M N I
87 ARLINGTON AVE, WESTMOUNT QUE 845-3812

HELLMAN, JOHN WILLIAM, PROF 392-4722
B A (MARQUETTE UNIV), M A (HARVARD),
PH D (HARVARD)
ASSISTANT PROFESSOR HISTORY
DEPT OF HISTORY, STEPHEN LEACOCK BLDG
3564 UNIVERSITY ST, MONTREAL 112 PQ

HELLSTROM, J G, DR
BSC (MCGILL), MD (MCGILL)
FRCP(C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED AND CLINICAL MED MGH, 1650 CEDAR AVE
475 FENTON AVE, TOWN OF MOUNT ROYAL QUE

HELMER, PAUL, MR 392-4526
B A (U OF TORONTO), M A (COLUMBIA)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST, W.
3135 VAN HORNE AVE, MONTREAL QUE

HELMSTAEDT, HERWART, PROF 392-5798
DIPL GEOL (MUNICH), PH D (NEW BRUNSWICK)
ASSISTANT PROFESSOR GEOLOGICAL SCIENCES
F D ADAMS BLDG
115 VICTORIA DRIVE, BAIE D URFE QUE 453-7374

HEMLOW, JOYCE, PROF 392-4717
LLD (QUEENS), LLD (DALHOUSIE)
BA (QUEENS), MA (QUEENS), AM (HARV), PHD (HARV)
F R S C
GREENSHIELDS PROF ENGLISH
ENGLISH, ARTS BLDG
3555 ATWATER AVE, APT 106 MONTREAL QUE 937-5944

HEMPEY, SADIE C M, MRS 392-8991
SR NON-ACADEMIC RANK STUDENT ACTIVITIES
STUDENTS SOCIETY, 3480 MCTAVISH ST
110-8TH AVENUE, TWO MOUNTAINS QUE

HENCHEY, NORMAN, PROF 392-8874
BA (LOYOLA U OF MTL), LIC PED (U MTL),
PH D (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH
307 40TH AVE, LACHINE QUE 637-2169

HENDELMAN, MYER, DR
BA (MCGILL), MD CM (MCG)
FRCS(C)
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOLOGY, WOMEN S PAVILION,
ROYAL VICTORIA HOSPITAL
1374 SHERBROOKE ST W, MONTREAL 109 QUE 844-4887

HENDERY, JOY N, MISS 392-4240
MATHEMATICS, BURNSIDE HALL
4670 GROSVENOR AVE, MONTREAL QUE 486-4066

HENEMAN, BERNARD, DR 392-5833
BACH (NANCY), D P H (MONTREAL), M D (NANCY)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
3775 UNIVERSITY
3865 EDOUARD MONTPETIT, MONTREAL QUEBEC

HENNEBERRY, GERALD OWEN, PROF 453-6580
B SC (DALHOUSIE), M SC (MCGILL)
ASSOCIATE PROFESSOR
DEPARTMENT OF AGRIC CHEMISTRY
AGRICULTURAL CHEM, MACDONALD COLLEGE 800, QUE
131 ANGELL AVE, BEACONSFIELD QUE 697-4180

HENRY, DONALD W, DR 392-4923
B A (BISHOPS), D D S (MCG)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTAL CLINIC, MONTREAL GEN HOSP,
1650 CEDAR AVE
227 KENASTON AVE, TOWN OF MT ROYAL 305, PQ

HENRY, FRANCES, PROF 392-5182
BA (BROOKLYN COLLEGE), M A (OHIO),
PHD (OHIO STATE UNIVERSI)
ASSOCIATE PROFESSOR ANTHROPOLOGY
LEACOCK BLDG
76 SOMERVILLE AVE, MONTREAL 6 QUE

HENRY, ROBINA E, PROF 392-4621
ASSOCIATE PROFESSOR UNIVERSITY CHARGES
ROMANCE LANGUAGES, PETERSON HALL
154 WOLSELEY AVE, MONTREAL 28 QUE 481-5219

HENZI, ROLAND, PROF 392-8043
DIP OF PHYS (ETH ZURICH),
DIP THEOR PHYS (SWISS INST TECH),
DR-ES-SC(PHD) (NEUCHATEL)
ASSISTANT PROFESSOR PHYSICS
4TH FL RM C410, MACDONALD CHEM BLDG
105 CEDARCREST, DOLLARD DES ORMEAUX 970, QUE
683-3660

HEPPNER, C A E, PROF 392-4995
BA (OXFORD), M A (MCG), PHD (TORONTO)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
269 MELVILLE AVE, WESTMOUNT QUE 937-0409

HERBA, MILTON J, DR
MEDICINE (MANITOBA)
LECTURER DIAGNOSTIC RADIOLOGY
DIAG RAD MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3250 FOREST HILL, MONTREAL QUE

HERMAN, LEILA, MRS 392-4926
BA (MCGILL)
DENTISTRY LIBRARY, STRATHCONA MED BLDG
5682 FERNCROFT RD, MONTREAL 254 QUE 481-5874

HERSCHORN, MICHAEL, PROF 392-5214
B A (MCGILL UNIVERSITY), M A (MCGILL),
PH D (MCGILL UNIVERSITY)
ASSOCIATE DEAN FACULTY OF SCIENCE
ASSOCIATE PROFESSOR MATHEMATICS
FACULTY OF SCIENCE, DAWSON HALL
5235 SARANAC AVE, MONTREAL 248 QUE 482-3239

HERSHENFIELD, EARL M, DR 937-6011
B SC (MCGILL), D D S (MCG), M SC DENT (BOSTON)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND STE 626,
MONTREAL 107 QUE
4141 SHERBROOKE ST WEST, SUITE 535 MONTREAL 215
931-2551

HERZ, CARL, PROF 392-5386
BA (CORNELL), PHD (PRINCETON)
PROFESSOR MATHEMATICS
BURNSIDE HALL
228 SIMCOE AVE, TOWN OF MT ROYAL QUE 733-2947

HESLEGRAVE, LINDA, MISS
DEPT OF MINING ENGINEERI, ROOM 724,
MCCONNELL BUILDING
535 VIAU ST, APT 7, MONTREAL QUE

HESSE, REINHARD, PROF 392-5840
B SC (TECH UNIV MUNICH),
MD (TECHN UNIV MUNICH)
ASSISTANT PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
1212 PINE AVE W, APT 1401A, MONTREAL QUE
845-1830

HEUSER, ALAN, PROF 392-4998
B SC (MCGILL), M A (MCG), PH D (HARVARD)
PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
174 THORNTON AVE, TOWN OF MT ROYAL 304 QUE
342-5625

HEUVELINK, HENRY T, MR
VISITING LECTURER FACULTY OF DENTISTRY
C/O DR RG JONES, 3550 COTE DES NEIGES,
MONTREAL QUE

HEYGE, ELVA MERCEDES, MS 392-5780
B SC HON (ACADIA)
DEMONSTRATOR CHEMISTRY
CHEMISTRY, OTTO MAAS CHEMISTRY, BLDG
11762 GENERAL GIRAUD, MONTREAL 390 QUE

HEYWOOD, EILEEN N, MRS 453-6580
MCLENNAN TRAV LIBRARY, MACDONALD COLLEGE 800,
QUE
127 QUEEN S RD, POINTE CLAIRE QUE 697-3762

HICKEY, ALLAN, DR
B SC (MCG), MD CM (MCG)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
ROYAL EDWARD CHEST HOSP, 3650 ST URBAIN ST,
MONTREAL 130 QUE 849-5201

HICKMAN, BARBARA, MRS 453-6580
BA (TORONTO)
LIBRARY MACDONALD COLL, LIBRARY MACDONALD COL
30 SUNNY ACRES, BAIE D URFE QUE 453-3588

HIDVEGI, R S, DR
M D (OF BUDAPEST)
DEMONSTRATOR SENIOR DIAGNOSTIC RADIOLOGY
DIAGNOSTIC RADIOLOGY
4590 CIRCLE ROAD, MONTREAL 245 QUE 482-4931

HIGGINBOTHAM, GLENN BRUCE, MR 392-5174
B A (BISHOPS)
ASST SEC OF SENATE
F CYRIL JAMES BLDG
APT 616 HABITAT 67, MONTREAL 103 QUE 861-1046

HILL, GERALD E, MR 392-8244
PURCHASING DEPT, ADMINISTRATION BLDG
695 MOFFAT AVE, VERDUN 204 QUE 766-0710

HILL, ROSS O, DR 937-6011
BSC (MCGILL), MDCM (MCGILL)
RCPS (C), CPSP (Q)
DIAGNOSTIC RADIOLOGY, MONTREAL GEN HOSP
342 BALLANTYNE NORTH, MONTREAL WEST QUE
489-2341

HILL, STUART BAXTER, DR 453-6580
B SC (SWANSEA WALES), PH D (READING),
PH D (U OF WEST INDIES)
LECTURER DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUE
BOX 86 MACDONALD COLL, STE ANNE DE BELLEVUE 800
QUE 453-9546

HILL, W H PHILIP, DR
BA (MCGILL), MDCM (MCGILL)
F R C P (C), M R C P, F A C P
PROFESSOR UNIVERSITY CLINIC M G H
UNIV OF NAIROBI, NAIROBI KENYA, EAST AFRICA
P O BOX 30588, NAIROBI, KENYA

HILLGARTNER, WILLIAM P, PROF 392-8031
B S (PENN STATE), M ED (PENN STATE),
PH D (SYRACUSE)
DIRECTOR INSTRUCTIONAL COMM CENTRE
INSTR COMMUNICATIONS, CHEMISTRY BLDG
4696 WESTMOUNT AVE, MONTREAL 217 QUE 486-7131

HILLMAN, ARTHUR DONALD, DR 392-4236
BSC (MCGILL), MD CM (MCG), PH D (MCG)
ASSOC DEAN POSTGRAD EDUC FAC OF MED
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
ASSOCIATE PROFESSOR FACULTY OF MEDICINE
DENTISTRY, MEDICINE, MCINTYRE MED BLDG
130 BROCK AVE S, MONTREAL W QUE

HILLS, THEODORE L, PROF 392-5495
BA (NEW ZEALAND), M A (CANT), PHD (MCGILL)
PROFESSOR GEOGRAPHY
PROFESSOR CTR FOR DEVLPNG AREA STUDIES
DEPT OF GEOGRAPHY, BURNSIDE HALL
35 DE BRETAGNE ST, PREVILLE QUE 671-2367

HILTON, JOHN P, REV 392-8827
STL (U MONTREAL), LIC TH (U MONTREAL),
MA (CATH UNIV OF AMER)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
ASSOCIATE DEAN FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
460 DORCHESTER BLVD W, MONTREAL 128 QUE
866-7379

HIMAL, HARRY S, DR 392-4858
BA (MCGILL), MD (OTTAWA)
FRCS (C)
ASSISTANT PROFESSOR
DEPT OF EXPERIMENTAL SURGERY
DEPARTMENT OF SURGERY, R V H
5700 CAVENDISH BLVD, APT 1502,
COTE ST LUC 265 QUE 181-1678

HINCHEY, E JOHN, DR 937-6011
MD CM (QUEENS), MSC (MCGILL)
FRCS(C), FACS
ASSOCIATE PROFESSOR MCGILL-M G H SURGERY CLINIC
SESSIONAL LECTURER MCGILL-M G H SURGERY CLINIC
UNIV CLIN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
641 QUEENS BLVD, ST LAMBERT QUE 671-6019

HINDLE, VALERIE, MISS 392-5105
FACULTY OF LAW, 3644 PEEL ST
MARCO POLO HOUSE APT 702, 1430 ST MARK ST,
MONTREAL 108 QUE 392-5105

HINELINE, EDNA C, PROF 392-8860
BS EDUC (MANCHESTER COLLEGE),
MA (UNIV OF CHICAGO)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST

HINELINE, MARION, MRS 392-8877
B S (EAU CLAIRE WISC), M A (MINNESOTA)
DEMONSTRATOR FACULTY OF EDUCATION
3700 MCTAVISH ST
5 GLENALADALE TERRACE, P O BOX 42,
MACDONALD COLLEGE 800 PQ 453-7264

HINRICHSEN, PETER F, PROF 392-4839
BSC (MANCHESTER), PHD (MANCHESTER)
ASSISTANT PROFESSOR PHYSICS
PHYSICS DEPT, FOSTER RADIATION LAB
3235 RIDGEWOOD AVE, APT 410 MONTREAL QUE
739-1566

HITSCHFELD, WALTER F, DEAN 392-5106
BASC (TORONTO), PHD (MCGILL)
PROFESSOR FACULTY OF GRAD STUDIES & RES
DEAN FACULTY OF GRAD STUDIES & RES
FAC OF GRAD STDS & RES, DAWSON HALL
4021 GRAND BOULEVARD, MONTREAL 261 QUE 481-9841

HLYWA, NADIA, MISS
FACULTY OF GRAD STUDIES, DAWSON HALL
2035 CLOSSE STREET, APT 5, MONTREAL 108 QUE

HOBBINS, ALAN JOHN TOWNSON, MR 392-4922
BA (MCGILL)
LIBRARIAN MCLENNAN LIBRARY - REFERENCE
REFERENCE DEPT, MCLENNAN LIBRARY
6205 SOMERLED APT 503, MONTREAL 253 PQ 481-0983

HOBBS, GILLIAN, MS 181-1579
PUBLICATIONS OFFICER UNIVERSITY CLINIC R V H
PUBLICATIONS OFFICE, RM 22 4 MAIN, R V H
418 PINE AVE, APT 34, MONTREAL 112 QUE

HOBBS, KATHLEEN M, MRS 392-5872
B SC (MCGILL)
REDPATH LIBRARY, 3459 MCTAVISH ST
129 THORNTON, TOWN OF MOUNT ROYAL PQ 731-6239

HODGE, AVERILL, MRS 392-8023
MCLENNAN LIBRARY - CIRC, MCLENNAN LIB
2255 CHOMEDEY ST, APT 2, MONTREAL 108 QUE

HODOREK, PATRICIA K, MRS 181-342
UNIV CLINIC, RM 15 4 MAIN,
ROYAL VICTORIA HOSP QUE
3465 RIDGEWOOD AVE, APT 200, MONTREAL 247 QUE

HOFFMAN, DANIEL L, MR 392-4979
SUPERINTEND MOYSE HALL ADMINISTRATION
TEACHING ASSISTANT ENGLISH
ENGLISH, ARTS BLDG
4870 QUEEN MARY RD 737-6032

HOFFMAN, MARTIN, DR 842-1251
D SC MT ALLISON UNIV
B A (MT ALLISON), M SC (DALHOUSIE),
M D C M (MCGILL), PH D (MCGILL)
PROFESSOR UNIVERSITY CLINIC R V H
1460 MCGREGOR AVE, MONTREAL 109 QUE 849-1984

HOFFMAN, ROY, PROF 392-5472
B A SC (WATERLOO), M A SC (TORONTO),
PH D (SASK)
ASSISTANT PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECH ENGR, THOMAS WORKMAN BLDG

1650 SHEVCHENKO BLVD. APT 307, LASALLE 363-4534

HOFFMANN, PETER C W, PROF 392-5190
PHD (MUNICH)
PROFESSOR POLITICAL SCIENCE
HISTORY DEPT, LEACOCK BLDG
4332 MONTROSE AVE, MONTREAL 217 QUE

HOGAN, JAMES J, DR 392-5920
B S (RENSSELAER POL INST), PH D (U OF CHICAGO)
ASSISTANT PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
45 SUMMERHILL AVE, POINTE CLAIRE QUE 697-9097

HOGAN, MARY HELENE, MISS 392-4927
FACULTY OF DENTISTRY, STRATHCONA MED BLDG
8680 23RD AVE, MONTREAL 456 QUE

HOGENBIRK, GERARD, MR 392-4641
BIOLOGY DEPT, STEWART BIOLOGY BLDG
4 6TH AVE SOUTH, ROXBORO QUE 684-5951

HOGG, JAMES C, DR 181-1781
M D (MANITOBA), M SC (MCGILL), PH D (MCGILL)
L M C C
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
MED RESEARCH SCHOLAR PATHOLOGY SERVICE
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST
870 41ST AVE, LACHINE QUE 634-1904

HOLDEN, EDWARD M, MR 392-5278
SUPERVISOR
MAIL ROOM, REDPATH LIBRARY
125 8TH AVE, TWO MOUNTAINS QUE 473-3285

HOLLAND, ANTHONY JOHN C, PROF
M B BS (ADELAIDE)
F A R C S
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, M G H
203 ELGAR RIVE, NUNS ISLAND, MONTREAL 201 QUE

HOLLAND, PETER G, PROF 392-8083
B SC (CANTERBURY N Z), M SC (CANTERBURY),
PH D (AUSTR NATIONAL)
ASSOCIATE PROFESSOR GEOGRAPHY
GEOG DEPT, UNIV OF NAIROBI, NAIROBI KENYA
3450 MCTAVISH ST, MONTREAL QUE 843-8616

HOLLANDER, JANE, MRS 392-4900
B S EDUC (N J ST TEACH CLLG)
CONT ED-ACCT SECTION, STRATHCONA HALL
4345 KENSINGTON AVE, MONTREAL QUE 486-5545

HOLLINGER, HARVEY Z, DR
B SC (MCG), M D (MCG), M SC (MCG)
DIP INT MED (MCG)
F R C P (C)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, MONTREAL GENERAL HOSP
482 ROSLYN AVE, MONTREAL 217 QUE 935-1494

HOLTON, JOHN H, MR 392-5357
M C
B COM (TORONTO)
SECTY BD GOVNRS ADMINISTRATION
OFFICE OF SECRETARY, F CYRIL JAMES ADMIN BLDG
255 46TH AVE, LACHINE QUE 634-0377

HONEY, F ISABEL, PROF 453-6580
BA (TORONTO), MASTER ART (TORONTO)
ASSOCIATE PROFESSOR SCHOOL OF FOOD SCIENCE
FOOD SCIENCE, MACDONALD COLLEGE 800, QUE
BOX 294, MACDONALD COLLEGE P O QU 453-9158

HOOD, ALAN B, DR
MD CM (MCG)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, QUEEN ELIZABETH HOSPITAL
38 DUFFERIN RD, HAMPSTEAD QUE

HOOGENDOORN, WILLEM, MR 392-5223
DEPT OF CHEMICAL ENG, MCCONNELL ENGR BLDG
11 PILON ST, CHATEAUGUAY CENTRE QUE 691-4866

HOOTON, MARGARET E, PROF 392-5028
BSCN (QUEENS), MSC (MCGILL)
R N
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
3484 STANLEY ST, APT 404, MONTREAL 112 QUE

HOPMEYER, ESTELLE, PROF 392-4359
BA (MCGILL), M S W (MCG)
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
764 UPPER BELMONT, WESTMOUNT 217 QUE 488-1740

HOROWITZ, ISADORE, DR
B SC (MCGILL), M SC (MCGILL)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
EPIDEMIOLOGY & HEALTH, 3775 UNIVERSITY
70 MAISONNEUVE DRIVE, DOLLARD DES ORMEAUX QUE
684-1429

HORSKA, STANISLAVA, MRS. 392-5836
BSC (PEDAGOGICAL UNIV), MA (PEDAGOGICAL UNIV)
DEMONSTRATOR SENIOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
5545 DUPUIS AVE, MONTREAL 252 PQ 733-6502

HORVATH, MARGARET, MRS
INFORMATION OFFICE, F CYRIL JAMES
810 PARK AVE, ST VINCENT DE PAUL, LAVAL QUE

HOSAIN, MOHAMMAD, MR 392-3011
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
3500 COLONIAL AVE, MONTREAL 130 QUE 282-3437

HOSEIN, ESAU, PROF 392-3019
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
PROFESSOR DEPARTMENT OF BIOCHEMISTRY
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
DEPARTMENT OF BIOCHEMIST, MCINTYRE MED BLDG
654 LANSDOWNE AVE, WESTMOUNT QUE 488-5959

HOTTE, RENEE, MRS 392-5448
B SC (ONTARIO)
A N P Q
SUPERVISORY NURSE HEALTH SERVICE - MCGILL
UNIV HEALTH SERVICE, 517 PINE AVE W
2045 PEEL ST, APT 506, MONTREAL 110 QUE

HOULE, GERMAIN LIONEL, DR 842-1251
BA (OTTAWA), MD (OTTAWA)
F A C A, C R C P, C S P Q, F R C P(C)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, ROYAL VICTORIA HOSP
213 DE LORRAINE, ST LAMBERT QUE 672-6916

HOVERMANN, OLGA, MRS 392-5046
BA (PHILLIPS)
SCHOOL OF SOCIAL WK LIB, 3506 UNIVERSITY STREET
MONTREAL
616 64TH AVE, CHOMEDEY LAVAL QUE

HOWARTH, BARRY ARTHUR, MR 392-5399
B ENG (MCGILL), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENGR BLDG
101 ST CHARLES ST E, LONGUEUIL QUE 677-3144

HOWES, LOIS ANN, MISS 392-3051
MCLENNAN LIBRARY - CAT, MCLENNAN LIB
6920 D OUTREMONT ST, MONTREAL QUE

HOWSON, HUGH R, PROF 392-5194
B COM (TORONTO), M COM (MCGILL)
CA
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
14 PRAIRIE DRIVE, BEACONSFIELD QUE 697-1682

HRENO, ANDREW, DR
MD (QUEENS)
F R C S (C), F A C S
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
SURGERY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
774 UPPER BELMONT AVE, WESTMOUNT QUE 932-3424

HUANG, SHAO-NAN, DR 181-486
BM(MD) (NATIONAL TAIWAN UNV)
C A P, F R C P S
PROFESSOR DEPT OF PATHOLOGY(TEACH)
PROFESSOR PATHOLOGY SERVICE
PATHOLOGY SERVICE, PATHOLOGICAL INST
146 DUNRAE, TOWN OF MOUNT ROYAL QUE 737-2547

HUBBARD, STEPHEN, MR 392-8273
F.D. ADAMS LIBRARY, FRANK DAWSON ADAMS BLDG
5825 DE LA ROCHE, APT 103, MONTREAL QUE

HUBSCHER, THOMAS, DR 937-8511
BSC (BUCHAREST), PH D (MCGILL)
LECTURER UNIVERSITY CLINIC R V H
2300 TUPPER, MONTREAL QUE
520 DE GASPE, APT 404, MONTREAL 201 QUE
761-2768

HUG, ANTHONY, MR 392-8876
FACULTY OF EDUCATION, 3700 MCTAVISH ST
130 PRINCE ARTHUR APT 8, MTL 130 QUE 845-5657

HUGHES, CAROL, MISS 392-4969
INDUSTRIAL RELATIONS CEN, ROOM 408 DAWSON HALL
235 SHERBROOKE STREET W, APT 616,
MONTREAL 130 QUE 845-7466

HUGHES, DONALD ROBERT STEWART, M 392-4558
B MUSIC (MCGILL), ARCT (TORONTO),
L MUSIC (MCGILL), M A (ROCHESTER)
LECTURER FACULTY OF MUSIC
555 SHERBROOKE ST W
45 ROGER PILON BLVD, DOLLARD DES ORMEAUX QUE
683-7493

HUGHES, EDNA R, MRS 392-8815
FACULTY OF EDUCATION, 3700 MCTAVISH ST
171 MILTON AVE, OTTERBURN PARK QUE 467-6104

HUH, CHUN, DR 392-4504
BS (SEOUL), PHD (MINNESOTA)
PROFESSIONAL ASSOC CHEMISTRY
CHEMISTRY, PULP & PAPER INST
560 31 ST AVE, APT 11, LASALLE P Q 363-6748

HUI, HUBERT, MR 392-8057
B SC (MCGILL)
DEPT OF EPIDEM & HEALTH, NEW PATHOLOGY WING
220 BERLIOZ PARK, APT 101 NUN S ISLAND,
MONTREAL 201 QUE 769-9783

HULL, ANNE, MRS
LAW LIBRARY, CHANCELOR DAY HALL
28 2ND AVE N, ROXBORO QUE

HUM, ANDREW, PROF 392-8882
B A (SGWU), PH D PENDING (UNIV OF ALTA),
M ED (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
COUNSELLOR EDUCATION, 3700 MCTAVISH ST
48 DURHAM RD, MONTREAL QUE

HUMPHREY, JOHN, PROF
DOC (ALGIERS), DOC SOC SC (OTTAWA)
DOC (ALGIERS), DOC SOC SC (OTTAWA), LLD ST THOM
B COMM (MCGILL), PH D (MCGILL)
PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
1455 SHERBROOKE ST W, APT 404 MONTREAL QUE

HUNT, BRIAN RALPH, DR
BA (OXFORD), MA (OXFORD)
L D C C
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY MTL CHLD HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
704 GROSVENOR AVE, WESTMOUNT QUE 933-1868

HUNTER, EDITH, MISS 453-6580
ASSISTANT SECRETARY
MACDONALD COLLEGE ADMINISTRATN
ADMINISTRATION, MACDONALD COLLEGE 800, QUE
42 PERRAULT AVE, STE ANNE DE BELLEVUE QUE
453-5744

HUNTER, GERALD, MR 392-5300
ADMISSIONS OFFICE, ADMIN BLDG
6566 STARNES ST, MONTREAL QUE 481-9796

HURLEY, GERALDINE, MRS 392-5296
REGISTRARS OFFICE, ADMINISTRATION BLDG
600 NOTRE DAME ST, ST LAMBERT QUE

HURSTFIELD-MEYER, DENYSE, MRS 392-5088
STUDENT AFFAIRS, DAWSON HALL
201 COROT RIVE, APT 1212, NUN S ISLAND 768-7589

HUTCHINSON, ALAN R, DR 842-1251
B A (VICTORIA), MDCM (MCGILL)
LECTURER UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, 4 MEDICAL
3938 CARLTON AVE, MONTREAL 249 QUE

HUTCHISON, GEORGE A, DR
B SC (MCG), MD CM (MCG)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
6801 MONKLAND AVE, MONTREAL 28 QUE

HUTCHISON, HAZEL M, MRS 392-5405
BA (SGWU), M L S (MCGILL)
LIBRARIAN MCLENNAN LIBRARY -SELECTION
ACQUISITIONS, MCLENNAN LIBRARY
64 STRATHEARN AVE, MONTREAL WEST QUE

HUTCHISON, J LAWRENCE, DR
BSC (MCGILL), MD (MCGILL)
F R C P (C), F A C P
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
LECTURER FACULTY OF DENTISTRY
FACULTY OF DENTISTRY, MONTREAL GENERAL HOSP
627 CARLETON AVE, WESTMOUNT 217 QUE 937-6011

HWANG, PILL J, DR 487-5565
D D S (KOREA), D D S (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 3545 COTE DES NEIGES RD,
MONTREAL 109 QUE
5501 ADALBERT ST, APT 1417, COTE ST LUC QUE
935-6822

HYAMS, BRAHM B, DR
B SC (MCGILL), M D C M (MCGILL)
DEMONSTRATOR SENIOR DIAGNOSTIC RADIOLOGY
3268 KENT AVE, MONTREAL 251 QUE 342-3111

HYLAND, THELMA, MRS 392-5416
DEPT OF ELECTRICAL ENG, MCCONNEL ENG BLDG
4412 MARCIL AVE, MONTREAL 260 QUE 484-7604

IDZIAK, EDMUND S, PROF 453-6580
BSC (AGR) (MCGILL), M SC (MCG),
DSC (T H DELFT)
ASSOCIATE PROFESSOR DEPT OF MICROBIOLOGY
MICROBIOLOGY DEPT, MACDONALD COLLEGE 800, QUE
35 MUIR PARK CIRCLE, SENNEVILLE 830 QUE
453-3928

IKAWA-SMITH, FUMIKO, PROF 392-5182
BA (TSUDA-JAPAN), MA (RADCLIFFE)
ASSISTANT PROFESSOR ANTHROPOLOGY
STEPHEN LEACOCK BLDG
3955 RAMEZAY AVE, MONTREAL 218 QUE 935-6045

INGERMAN, SIDNEY H, PROF 392-5233
BS BUS ADM (UNIV OF BUFFALO),
PH D (U CALIF BERKELEY)
ASSOCIATE PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
12392 COUSINEAU ST, MONTREAL 389 QUE 332-2139

INGRAM, JORDAN M, DR 453-6580
B SC (MCG), M SC (MCG), PH D (MICH ST)
ASSISTANT PROFESSOR DEPT OF MICROBIOLOGY
MACDONALD COLLEGE 800, QUE
91 SOMERSET RD, BAIE D URFE QUE 453-1083

INGRAM, R GRANT, DR 392-5718
B SC (MCGILL), PH D (MIT)
ASSISTANT PROFESSOR MARINE SCIENCE CENTRE
STRATHCONA HALL
51 ROOSEVELT AVE, APT 16, TOWN OF MT ROYAL QUE

INHABER, DAVID, MR 392-4707
DEPT MANAGER MCGILL BOOK STORE
BOOKSTORE, 3416 MCTAVISH ST
3975 ST URBAIN ST, MONTREAL 131 QUE 844-5803

IRVING, COLIN, MR
LECTURER FACULTY OF LAW
CHANCELLOR DAY HALL
O BRIEN HOME & HALL, 2100 PLACE DU CANADA,
MONTREAL QUE

ISH, BONNIE J, MRS 392-4513
REDPATH LIBRARY, CIRCULATION RES DEPT
3660 PEEL ST, APT 8 MONTREAL 112 PQ 844-9843

ISH, DANIEL R, MR 392-5367
BA (SASK)
ASSISTANT PROFESSOR FACULTY OF LAW
OLD CHANCELLOR DAY HALL, 3644 PEEL ST
3660 PEEL ST APT 8, MONTREAL 112 QUE 844-9843

ISHERWOOD, GEOFFREY B, DR 392-8817
B S (TUFTS UNIV), ED D (RUTGERS)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
APT 507 24 ST GEORGE ST. STE ANNE DE BELLEVUE Q 453-5733

ITIABA, KIBE, PROF 181-1889
B SC (TOR), M SC (LEICESTER), PH D (TOR)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, ROYAL VICTORIA HOSPITAL
RM 11 4 MAIN, ROYAL VICTORIA HOSPITAL

ITON, JOHN W, PROF 392-5230
BA (HONS) (MCGILL), PHD (JOHNS HOPKINS)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
48 ROXTON CRESCENT, MONTREAL 264 QUE 488-2677

IVES, JOHN R, MR 181-493
BSC MECH E (QUEENS KINGSTON ONT),
MSC (STRATHCLYDE)
LECTURER NEURO ELECTRONICS LABORATORY
NEURO & NEUROSURGERY, M N I
103 LAKESHORE RD, POINTE CLAIRE QUE

IZMIRLIAN, CHRISTINE-MARIE, MRS 392-4926
DENTISTRY LIBRARY, STRATHCONA MED BLDG
1570 ST TIMOTHY, APT 1209 MONTREAL PQ 525-6469

IZUTSU, TOSHIHIKO, PROF 392-5198
MA (KEIO), PHD (KEIO)
PROFESSOR INSTITUTE OF ISLAMIC STUDIES
ISLAMIC STUDIES, STEPHEN LEACOCK BLDG
2070 BLVD MAISONNEUVE, MONTREAL QUE

JACKSON, SHIRLEY M, MISS 392-5730
GEOLOGICAL SCIENCES, F.D. ADAMS BLDG
5546 ROSEDALE AVE, MONTREAL QUE 484-0684

JACOBSON, PETER, MR 392-5139
BA (SYDNEY), LLB (SYDNEY), LLM (PENNSYLVANIA)
ASSISTANT PROFESSOR FACULTY OF LAW
6565 KILDARE APT 402, COTE ST LUC, MONTREAL QUE

JACOBSON, STEPHEN A, DR
MD (DAL)
LECTURER DEPARTMENT OF SURGERY
JEWISH GENERAL HOSP, 3755 COTE ST CATHERINE
JEWISH GENERAL HOSP, 3755 CT ST CATHERINE RD,
MONTREAL 249 QUE

JAMES, RALPH, MR
ADMISSIONS OFFICER ADMISSIONS OFFICE
F CYRIL JAMES BLDG
3520 UNIVERSITY ST, MONTREAL 112 QUE

JAMESON, NORMA Y, MISS 392-5256
BA (TRINITY COLG), DIP (QUEENS)
STUDENT COUNSELLOR STUDENT AID OFFICE
ADMINISTRATION BLDG
2070 DE MAISONNEUVE, APT 97, MONTREAL PQ 931-3673

JAPP, ROBERT DOUGALL, PROF 392-5928
B ENG (MCGILL), M ENG (MCG), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
142 CARLTON RD, BEACONSFIELD QUE 695-7784

JAVED, A HAMID, MR
B SC HONS (PESHAWAR), MS (COL STATE)
SESSIONAL LECTURER DEPARTMENT OF ANIMAL SCIENCE
MACDONALD COLLEGE 800 PQ
C/O MACDONALD COLLEGE800, QUE 453-6580

JAY, ERIC G, PROF 392-4829
D D MTL DIOCESAN THEOL COLL
, BA (LEEDS), B D (LOND), M TH (LOND)
PHD (LONDON)
PROFESSOR FAC OF RELIGIOUS STUDIES
RELIGIOUS STUDIES, 3520 UNIVERSITY ST
570 MILTON ST, APT 15, MONTREAL 130 QUE 844-8322

JEHU, STANLEY L, MR 392-5186
ACQUISITIONS DEPT, MCLENNAN LIBRARY,
3459 MCTAVISH
225 32ND AVE, LACHINE QUE

JERRETT, MARY D, PROF 392-5028
BN (MCGILL), MSC (BOSTON UNIVERSITY)
R N
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
WILSON HALL
1100 MCGREGOR AVE, APT 116, MONTREAL QUE 845-0306

JERRY, LAURENCE MARTIN, DR 842-1251
M D (TORONTO)
F R C P
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
PROFESSIONAL ASSOC DEPARTMENT OF BIOCHEMISTRY
UNIVERSITY CLINIC, IMMUNOCHEM & ALLERGY,
11 MED R V H
521 ALGONQUIN AVE, TOWN OF MOUNT ROYAL,
MONTREAL 305 QUEBEC 7

JIRKOVSKY, ZUZANA, MRS 392-5380
CHEMICAL ENG (CZECH TECH UNIV)
MCLENNAN LIBRARY - AQUIS, MCLENNAN LIBRARY
3210 FOREST HILL, APT 1102 MONTREAL 247

JOBLING, JOHN KEITH, PROF 392-8873
BA (LEEDS), MA (MCGILL), PH D (OTTAWA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN OF SOC.FOUNDATIONS OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
111 AURORA AVE, PT CLAIRE QUE 697-8098

JOHANNSEN, ALICE E, MISS 467-4010
B SC (MCGILL), FMA (BRITISH MUSEUMS DIP)
FELLOW BRIT MUS, FELLOW CDN MUSE,
ASSISTANT WARDEN GAULT ESTATE
GAULT ESTATE, MONT ST HILAIRE,
COUNTY ROUVILLE QUE
GAULT HOUSE, 422 RUE DES MOULINS,
MONT ST HILAIRE QUE 467-4010

JOHNSON, BARBARA, MISS
CHEMISTRY, OTTO MAASS CHEM BLDG
2329 DE MAISONNEUVE, APT 15, MONTREAL QUE 392-8086

JOHNSTON, DONALD J, MR
LECTURER FACULTY OF LAW
3644 PEEL STREET, MONTREAL 112 PQ
IBM BLDG, 4 PLACE VILLE MARIE, MONTREAL QUE

JOHNSTON, GEORGE, DEAN 392-4828
DD (GLASGOW)
MA (HONS) (GLASGOW), B D (GLAS), PH D (CANTAB)
PHD (CANTAB)
DEAN FAC OF RELIGIOUS STUDIES
PROFESSOR FAC OF RELIGIOUS STUDIES
FACULTY OF RELIG STUD, 3520 UNIVERSITY ST
44 ACADEMY ROAD APT 8 935-2186

JOHNSTON, N DOUGLAS, MR 392-5241
B COM (MCG)
TREASURER ADMINISTRATION
ADMINISTRATION, F CYRIL JAMES BLDG
44 FINCHLEY RD, HAMPSTEAD QUE 484-5952

JOHNSTON, NORMA E, MISS 392-4832
B A (S G W U), B L S (MCG), M L S (MCG)
LIBRARIAN RELIGIOUS STUDIES LIBRARY
3520 UNIVERSITY ST
3640 HUTCHISON ST, APT 3 MONTREAL QUE 849-7124

JOHNSTONE, DIANA E, MISS 453-6580
ENT & PLNT PATH DEPT, MACDONALD COLLEGE 800,
QUE
42A PERRAULT AVE, STE ANNE DE BELLEVUE 800, QUE

JOHNSTONE, ROSE M, PROF 392-4248
B SC (MCGILL), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY, MCINTYRE MED BLDG
4064 OXFORD AVE, MONTREAL QUE 484-4470

JONAS, JOHN JOSEPH, PROF 392-5707
B ENG (MCGILL), PH D (CAMBRIDGE)
ASSOCIATE PROFESSOR DEPT OF METALLURGICAL ENG
ASSOC DEAN FELLOWSHIPS GRAD STUDIES & RSRCH
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
311 METCALFE AVE, MONTREAL 215 QUE 937-6616

JONES, ARCHIBALD R C, PROF 453-6580
BSCF (TORONTO), MSC (S U OF N Y)

ING F
ASSOCIATE PROFESSOR WOODLOT MANAGEMENT
DEPARTMENT CHAIRMAN WOODLOT MANAGEMENT
WOODLOT MANAGEMENT, MACDONALD COLLEGE 800, QUE
BOX 307, MACDONALD COLLEGE P O QU 453-6571

JONES, BRUCE N, MR 392-4773
B COMM (MCGILL)
ASSOCIATE DIRECTOR GRADUATE SOC OF MCGILL
3618 UNIVERSITY ST
220 OLIVIER ST APT 205, WSMT MONTREAL 215 QUE
933-7920

JONES, ERIC STANLEY, MR 392-5468
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
254 GRAND PRE, L ACADIE, COUNTY OF ST JEAN QUE

JONES, GEOFFREY MELVILL, PROF 392-4217
BA (CAMBRIDGE), M A (CAMB), MB BCH (CAMB)
MD (CAMBRIDGE)
F C A S I, A F R A S
PROFESSOR DEPARTMENT OF PHYSIOLOGY
DIRECTOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SC BLDG
3265 GLENCOE AVE, TOWN OF MOUNT ROYAL QUE
731-0800

JONES, GERALD MURRAY, PROF 453-6580
BS (CORNELL UNIVERSITY), M SC (MAINE),
PH D (PENN STATE UNIV)
ASSISTANT PROFESSOR
DEPARTMENT OF ANIMAL SCIENCE
ANIMAL SCIENCES, MACDONALD COLLEGE 800, QUE
BOX 230, MACDONALD COLLEGE QUE 453-5386

JONES, HENRI CHARLES, PROF 392-4674
BA(PHILOS) (PARIS), DOCTORATE (TOULOUSE)
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG & LIT, PETERSON HALL
3425 RIDGEWOOD AVE, APT 413, MONTREAL 247 QUE

JONES, MARGARET ISABEL, MISS 392-5197
B S (TENNASSEE), M A (EMORY)
INST ISLAMIC STUDIES LIB, STEPHEN LEACOCK BLDG
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JONES, NORMAN F, MR
VISITING LECTURER FACULTY OF DENTISTRY
STRATHCONA DENT BLDG
4914 SHERBROOKE ST W, MONTREAL QUE

JONES, ROBERT F, PROF
BACH MUS (NEW ENGLAND CONSERVAT),
M F A (BRANDEIS)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST W
2739 E ALMERIA ROAD, PHOENIX ARIZONA 85008,
U S A

JONES, ROBERT J D, MR
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, EDUCATIONAL MEDIA CENTRE,
3700 MC TAVISH ST
3655 STE FAMILLE ST, APT 81, MONTREAL 130 QUE

JONES, RONALD G, PROF
BA (MCGILL), MSD (INDIANA UNIVERSITY)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
634 BELMONT AVE, WESTMOUNT 217 QUE

JONES, SYDNEY, MR 392-4626
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JONSSON, WILBUR, PROF 392-4790
B SC (MAN), M SC (MAN), DR RER NAT (TUBINGEN)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
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DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
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4000 BLVD MAISONNEUVE W, RM 803,
MONTREAL 216 QUE

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B A (MANITOBA), M L S (MCG)
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JUDKINS, WINTHROP O, PROF 392-4975
B A (HARVARD), M A (HARV), PH D (HARVARD)
PROFESSOR ART HISTORY
ART HISTORY, ARTS BLDG
40 HILLCREST AVE, POINTE CLAIRE QUE

JULIEN, ALAIN, MR 392-3091
LICENSE (MONTPELLIER), BAC (MONTPELLIER),
LIC EN DROIT (MONTPELLIER)
MASTERS (MONTPELLIER)
SESSIONAL LECTURER FRENCH
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LECTURER DEPT OF PEDIATRICS
MONTREAL CHILDRENS HOSP
2 MERTON CRESCENT, MONTREAL 254 QUE 733-2522

JUST, GEORGE, PROF 392-5786
ING-CHIM (ETH ZURICH SWITZERL),
PHD (U WESTERN ONTARIO)
PROFESSOR CHEMISTRY
CHEMISTRY, OTTO MAASS CHEMISTRY BLD
499 MOUNT PLEASANT, WESTMOUNT QUE 937-4351

JUSTMANN, ERIKA, MISS 392-4717
B A (U OF DUBUQUE)
MCLENNAN LIBRARY - RARE, RARE BOOK DEPT
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KAAL, HANS, PROF 392-5152
BA (MCGILL), MA (MCGILL)
ASSISTANT PROFESSOR PHILOSOPHY
772 SHERBROOKE ST.W.
454 ARGYLE AVE, WESTMOUNT QUE 935-8235

KACHANOFF, RALPH, DR
BA (SIR GEORGE), PHD (A S U)
LECT. DEPT PSYC.
SESSIONAL LECTURER PSYCHOLOGY
DOUGLAS HOSPITAL
2165 CAMBRIDGE, TOWN OF MOUNT ROYAL,
MONTREAL QUE 737-2756

KAFER BOOTHROYD, ETTA, PROF 392-5824
ASSOCIATE PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
5522 BORDEN AVE, COTE ST LUC 266 QUE 488-6837

KAHANEK, MARY, MRS 392-8274
SCH OF COMPUTER SCIENCE, BURNSIDE HALL
3465 HUTCHISON ST, APT 703, MONTREAL QUE
288-1641

KAHLENBERG, ARTHUR, DR 342-3111
BSC (SIR GEORGE WILLIAMS), PH D (MCGILL)
MED RESEARCH SCHOLAR UNIVERSITY CLINIC R V H
INVEST MED JWSH GEN HOSP,
3775 COTE ST CATHERINE,MONTREAL 249 QUE
5680 MERRIMAC ROAD, COTE ST LUC 269 QUE
487-3483

KAHN, DAVID S, DR 181-25
BA (SASKATCHEWAN), MD (TORONTO)
L M C C
PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
1301 CALEDONIA RD, MONTREAL 305 QUE

KAHN, MARIAN, MISS 392-4339
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KAHNE, HAROLD, DR

B SC (MCGILL), M D C M (MCGILL)
LECTURER DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
4800 DORNAL AVE, MONTREAL 248 QUE 737-5476

KALANT, NORMAN, DR
MD (TORONTO), B SC (TOR), PHD (MCGILL)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE JEWISH GEN HOSP,
3775 COTE STE CATHERINE,MONTREAL 249 QUE
220 KINDERSLEY AVE, TMR MONTREAL 305 QUE
342-3111

KALOMIRIS, CONSTANTINOS G, DR
B SC (SIR GEORGE WILLIAMS), M SC (MCGILL),
PH D (MCGILL)
PROFESSIONAL ASSIST UNIVERSITY CLINIC R V H
SUITE 200-202
995 OGILVY AVE, MONTREAL 303 QUE 272-1670

KAMAL, MUSA R, PROF 392-5442
B SC (ILLINOIS), MS (CARNEGIE-MELLON),
PH D (CARNEGIE-MELLON)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
338 ROSLYN AVE, WESTMOUNT 215 QUE 937-2147

KAMINSKY, PENNY, MISS 392-4626
BA (MCGILL), M L S (MCGILL)
LIBRARIAN MCLENNAN LIBRARY - CAT
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KANONGO, RABINDRA, PROF 392-5871
BA HONOURS (UTKAL INDIA), PH D (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
71 WESTPARK BLVD, DOLLARD DES ORMEAUX QUE
684-7180

KANZLER, BRENDA, MS 392-5872
BA (PATTERSON STATE COL), MLS (RUTGERS)
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3620 RIDGEWOOD AVE, APT 303, MONTREAL 217 QUE
737-0889

KAPICA, LUCIA, DR 181-277
BSC BOTANY (UNIV OF WALES), M SC (MCG),
PHD MICROB (MCGILL UNIV)
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOLOGY ▮ IMMUNOLOG, PATH INST
5751 COTE ST ANTOINE RD, MONTREAL QUE

KAPLAN, EILEEN, DR
B A (QUEEN S), M A (ILLINOIS), PH D (ILLINOIS)
ASSOCIATE PROFESSOR PSYCHOLOGY
STEWART BIOLOGY BLDG
1550 MCGREGOR AVE, APT 305, MONTREAL QUE

KAPLAN, LAWRENCE, PROF 392-5969
B A (YESHIVA COLLEGE), M A (HARVARD)
ASSISTANT PROFESSOR JEWISH STUDIES PROGRAM
3511 PEEL
1945 BARCLAY AVE, MONTREAL QUE

KARASZ, KATALIN, MRS 392-5113
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5467 BRODEAU, N D G, MONTREAL QUE 484-9442

KARLE, WILLARD J, MR 392-8031
B A (WAYNE ST), M A (MICHIGAN)
MEDIA SUPERVISOR INSTRUCTIONAL COMM CENTRE
INSTR COMM CENTRE, MACDONALD CHEM BLDG
6710 WILDERTON AVE, MONTREAL 251 QUE

KARN, GORDON M, PROF
B SC (MCGILL), MD CM (MCG), M SC (MCG)
M SC (MCGILL)
F R C S (C), L M C C
ASSOCIATE PROFESSOR MCGILL-M C H SURGERY CLINIC
SURGERY MTL CHLDS HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
622 MURRAY HILL AVE, MONTREAL 6 QUE

KARPATI, GEORGE, DR
MD (DALHOUSIE)
F R C P
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
5726 QUEEN MARY RD, HAMPSTEAD QUE

KATO, GABOR, DR 392-3009
BSC (MCGILL), PHD (MCGILL)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
ASSISTANT PROFESSOR ANAESTHESIA RES DEPT
ANAESTHESIA RES DEPT, ROOM 1203,
MCINTYRE MEDICAL BLDG
1545 MCGREGOR, APT 602, MONTREAL QUE

KATZ, MYER, PROF 392-5051
BA (SIR GEORGE WILLIAMS), B S W (MCG),
M S W (MCG), PHD (COLUMBIA)
PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
656 GROSVENOR AVE, WESTMOUNT QUE 739-8810

KAUFMAN, FRED, PROF
BSC (BISHOP S), B SC (BISHOPS), BCL (MCGILL)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
NEW PATHOLOGY BLDG
1255 PHILLIPS SQUARE, MONTREAL QUE

KAUFMAN, HYMAN, MR 392-8261
BSC (MCGILL), PHD (MCGILL)
PROFESSOR MATHEMATICS
MATHEMATICS DEPT, BURNSIDE HALL
533 QUERBES AVE, OUTREMONT QUE

KAYE, MICHAEL, DR
M B B S (LONDON), DP INT MED (MCGILL)
FRCP(C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
MED & CLIN MED M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
7 DOUGLAS AVE, WESTMOUNT 217 QUE 937-6011

KEENAN, ANN, MRS 392-5078
B A (S G W U)
FAC OF SCIENCE, DAWSON HALL, RM 211
346 KITCHENER AVE, WESTMOUNT 215 QUE

KELADA, NABILA, MRS 392-5197
INSTITUTE OF ISLAMIC STU, STEPHEN LEACOCK
5510 ROBINSON AVE, APT 408, COTE ST LUC QUE
489-5190

KELTON, JACQUELINE, M 453-6580
R N
STAFF NURSE HEALTH SERVICE - MACDONALD
HEALTH SERVICE - MACDONA, MACDONALD COLLEGE INF
1084 PARKVIEW, CHOMEDEY QUE 681-4539

KEMP, BEATRICE, MRS 392-8218
ENGLISH DEPT, ARTS BLDG
2324 LINCOLN ST, APT 27, MONTREAL 108 QUE

KEMP, WILLIAM B, MR 392-8084
BA (MIAMI UNIVERSITY),
MA (MICHIGAN STATE UNIV)
LECTURER GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
5245 DUROCHER AVE, MONTREAL QUE

KENDALL, ALAN GORDON, DR 181-1511
B SC (MCG), B A (OXON), MD CM (MCG), M A (OXON)
F R C P (C), F A C P
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
P O BOX 30588, UNIV COLLEGE NAIROBI,
KENYA EAST AFRICA
P O BOX 30588, NAIROBI KENYA, EAST AFRICA

KENNEDY, ALEX H, MR
B MATH (U OF WATERLOO), M SC (MCGILL)
LECTURER MATHEMATICS
BURNSIDE HALL
4155 L ESPLANADE APT 5, MONTREAL 131 PQ

KENNEDY, BRIAN W, MR 453-6580
B SC (MCGILL), PH D (CORNELL)
ASSISTANT PROFESSOR
DEPARTMENT OF ANIMAL SCIENCE
MACDONALD COLLEGE, AGRICULTURAL BLDG
153A STE ANNES STREET, STE ANNE DE BELLEVUE PQ.

453-6545

KENNEDY, JOHN STANLEY, MR 392-5258
BA (MCGILL)
DIRCTR STUDENT AID STUDENT AID OFFICE
STUDENT COUNSELLOR, ADMINISTRATION BLDG
R R 3, HEMMINGFORD QUE 247-2092

KENNEDY, RICHARD JOHN, DR
B SC (MCGILL U), M D (QUEEN S U)
LECTURER DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOSP, 1650 CEDAR AVE
61 BELCOURT, DOLLARD DES ORMEAUX QUE

KEOUGH, PATRICK S, MR 392-4371
SUPT MAINTENANCE AND UTILITIES
PHYSICAL PLANT, 840 MCGREGOR
292 10TH AVE, CITE DEUX MONTAGNES, P Q 473-4254

KERKLAAN, LEO C.H., MR 392-5023
B COM (SIR G WMS)
C D P
MANAGER STAFF & FINANCIAL INFORMATION SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
1350 HERRON RD, VILLA 52 DORVAL 780 QUE
631-6165

KERNER, ILONA, DR
MD (BUDAPEST), CERTIFICAT (MCGILL)
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
215 DUFFERIN ROAD, HAMPSTEAD, MONTREAL 254 QUE

KESSLER, JACQUES I, DR
MD (HADASSAH MED SCH)
F R C P
PROFESSOR UNIVERSITY CLINIC R V H
M R C FELLOW UNIVERSITY CLINIC R V H
UNIV CLINIC, GASTROENTEROL DIV, R V H
5603 GREENWOOD AVE, MONTREAL 269 QUE 484-4423

KESZLER, HUGO, DR 342-2320
M D (OXFORD)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
QUEEN MARY VETERANS HOSP, 4565 QUEEN MARY RD, MONTREAL 247 QUE
5191 EARNSCLIFFE AVE, MONTREAL 248 QUE 342-2320

KETIS, ADOLF, MR
CIRCULATION STACK STAFF, MCLENNAN LIBRARY
8064 WISEMAN ST, APT 2, MONTREAL QUE

KEVAN, D K MC E, PROF 453-6580
B SC (HON) (EDINBURGH), PHD (NOTTINGHAM)
FRS (EDIN), AICTA
PROFESSOR DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUE
20 WOODRIDGE CRESC, BEACONSFIELD QUE 695-5005

KHALIL, MOURAD K, DR 937-6011
MB BCH (CAIRO UNIV)
L M C C, F R C S (C)
LECTURER DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY ROOM 237, MONTREAL GENERAL HOSP
543 CHESTER AVE, TOWN OF MOUNT ROYAL QUE

KHAN, NAZIR AHMED, DR
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
MONTREAL GENERAL HOSP, 1650 CEDAR AVE
DIAGNOSTIC RADIOL, MGH 1650 CEDAR AVE, MONTREAL QUE

KHANDWALLA, PRADIP, PROF 392-5801
B COM (BOMBAY), M B A (PENN),
PH D (CARNEGIE-MELLON)
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
1150 COTE VERTU, APT 407 ST LAURENT, MONTREAL 107 QUE

KHAZZOOM, J DANIEL, PROF 392-5886
B SC (TEL AVIV UNIVERSITY), MA (HARVARD),
PH D (HARVARD)
ASSOCIATE PROFESSOR ECONOMICS
POLITICAL SCIENCE, LEACOCK BLDG
570 MILTON ST, MONTREAL 130 QUE 843-6694

KIANKA, FRANCES M, MRS 392-8846
B A (MONTREAL)
SESSIONAL LECTURER FACULTY OF EDUCATION
ENGLISH DEPT, 3700 MCTAVISH ST
3425 STANLEY ST APT 206, MONTREAL 112 PQ

KIERANS, ERIC W, PROF 392-5232
B A (LOYOLA)
PRIVY COUNCIL
PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
5631 QUEEN MARY RD, HAMPSTEAD QUE 482-4717

KIERNAN, KATHLEEN GERTRUDE, MISS 392-4222
MEN S RESIDENCE, B M H
663 DEMARCHAIS BLVD, VERDUN QUE 769-2391

KIM, PYUNGHEE, MRS 392-3051
BSC (KOREAN NAT)
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KIMOFF, R, DR
M D (OF TORONTO)
LECTURER DIAGNOSTIC RADIOLOGY
DIAGNOSTIC RADIOLOGY
113 CHARTWELL CRESCENT, BEACONSFIELD 880 QUE

KINCH, ROBERT A H, DR 937-6011
BS (LONDON), MB (LONDON)
M R C S, L R C P, M R C O G, L M C C
PROFESSOR DEPT OF OBSTETRICS & GYNAECOLY
OBS & GYN MTL GEN HOSP, 1650 CEDAR AVE, MONTREAL 109 QUE
400 LANSDOWNE AVE, APT 105, MONTREAL 217 QUE

KING, R M, MR
SPECIAL LECTURER DEPT OF CIVIL ENG
CIVIL ENG & APPLIED MECH, MACDONALD ENGINEERING
98 BEACONSFIELD BLVD, BEACONSFIELD QUE

KINGDON, G SAMUEL, MR 392-5253
CD
BASC (TORONTO)
SCUP
DIRECTOR OFFICE OF UNIVERSITY PLANNING
PHYSICAL PLANNING, 5TH FLOOR,
F CYRIL JAMES ADMIN BLDG
375 ETIENNE BRULE, ST BRUNO QUE 653-6318

KINGSBURY, DONALD, MR 392-4814
BSC (MCGILL), MSC (MCGILL)
LECTURER MATHEMATICS
BURNSIDE HALL
414 PRINCE ARTHUR W, APT 1, MONTREAL 130 QUE
845-2898

KIRBY, JOHN CHARLES, PROF 392-4833
B A (MCGILL), S T B (GEN SEM NY), S T M (MCG)
PH D (MCGILL)
ASSOCIATE PROFESSOR FAC OF RELIGIOUS STUDIES
RELIGIOUS STUDIES, 3520 UNIVERSITY
291 35TH AVE, LACHINE QUE 637-6216

KIRCHENBERGER, F. H., MRS 392-3065
MEDICAL LIBRARY, MCINTYRE MED BLDG
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KIRK, MARY ELLEN, DR
M D (W ONT)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY
1520 MCGREGOR ST, APT 103, MONTREAL 109 QUE

KIRKMAN, ELIZABETH, MRS 453-6580
DEPARTMENT OF SOIL SCIEN, MACDONALD COLLEGE
121 DEVON RD, BEACONSFIELD QUE 697-4619

KIRSCHBERG, LEO S S, DR
MD (MCGILL)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
3429 GREY AVE, MONTREAL QUE
3429 GREY AVE, MONTREAL 260 QUE

KISS, ANNE, PROF 392-5029
B A (CLARKE COLL), M ED (MINN)
ANPQ
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
2207 OXFORD AVE, MONTREAL 260 QUE 482-3984

KITCHING, JAMES E, PROF 392-4839
BSC (MCMASTER), PHD (MCMASTER)
ASSISTANT PROFESSOR PHYSICS

PHYSICS DEPT, FOSTER RADIATION LAB
5052 WOODLAND DRIVE, PIERREFONDS QUE 684-2391
KITTS, SHARON, MISS 392-4936
B A (MCMASTER)
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
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KLASSEN, GERALD A, DR 181-1759
MD (UBC)
F R C P (C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLIN, RM 2620 2 MED, R V H
143 DOBIE AVE, MONTREAL 304 QUE 738-8136
KLIBANSKY, RAYMOND, PROF 392-5144
D PHIL (OTTAWA)
D PHIL (HIEDEL), MA (OXON), DR HABIL (HIEDEL)
F R H S, F R S C
FROTHINGHAM PROF OF LOGIC & METAPHYSICS
ROOM 608, LEACOCK BLDG
3660 PEEL ST, APT 29, MONTREAL QUE
KLIMA, SLAVA, PROF 392-4998
BA (MASARYK UNIV), MA (BOWDOIN), PH D (YALE)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
1290 PINE AVE W, APT 6 MONTREAL 109 QUE 849-9901
KLINCK, HAROLD R, PROF 453-6580
BSA (TORONTO), M SC (MCG), PHD (MCGILL)
CAPQ
DEPARTMENT CHAIRMAN DEPARTMENT OF AGRONOMY
PROFESSOR DEPARTMENT OF AGRONOMY
ACTING DEAN FACULTY OF AGRICULTURE
AGRONOMY, MACDONALD COLLEGE 800, QUE
12 MAPLE AVE, STE ANNE DE BELLEVUE 800, QUEBEC
KLING, NORMAN, MR 392-5023
B SC (MCGILL)
PROGRAMMER MANAGEMENT SYSTEMS
F CYRIL JAMES BLDG
508 SPRING GARDEN RD, DOLLARD DES ORMEAUX QUE 684-0201
KLISSOURAS, VASSILIS, PROF 392-8010
B SC (SPRINGFIELD), M SC (SPRINGFIELD),
D P ED (SPRINGFIELD)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
FACULTY OF EDUCATION, 3700 MCTAVISH ST
1230 MCGREGOR STR, APT 307, MONTREAL QUE 845-5469
KNAACK, JUERGEN, DR 181-1781
MD (CHRISTIAN ALBRECHT)
FRCP C
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSISTANT PROFESSOR PATHOLOGY SERVICE
DEPT OF OPTHALMOLOGY, MONTREAL GENERAL HOSP
5015 GLENCAIRN AVE, MONTREAL 248 PQ 488-9478
KNYSTAUTAS, ROMUALD, PROF 392-5464
B ENG (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
P O BOX 253, STATION RD, SHAWBRIDGE QUE 224-5197
KOCH, PAUL, DR
BA (BADEN)
LECTURER DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOSP
12167 JAMES MORRICE, MONTREAL 365 QUE 334-2556
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MB (ATHENS)
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A M I
460 GLENGARRY AVE, TOWN OF MT ROYAL 305 QUE 181-1711
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555 SHERBROOKE ST W,
2540 NOEL ST, MONTREAL QUE 748-6053
KOOSIS, PAUL J, DR
SPECIAL LECTURER MATHEMATICS
BURNSIDE HALL
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ASSOCIATE PROFESSOR DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG
418 PINE AVE WEST, APT 29 MONTREAL QUE 843-7169
KOPS, LUCJAN, PROF 392-5472
B E (KRAKOW TECHNICAL U),
M SC ENG (TECH U KRAKOW POLAND)),
DR SC ENG (KRAKOW TECHNICAL U)
CEQ
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
1455 SHERBROOKE ST W, MONTREAL 109 QUE 933-9967
KOUNIAS, EUSTRATIOS PROF 392-4295
B SC (ATHENS), PH D (MANCHESTER)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
7475 MILAN BLVD, MONTREAL 452 QUE 678-1845
KOVACS, BELA, DR 842-1255
MD (SZEGED), PH D (LONDON)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED RM 15, R V H
211 WURTENBURG STR, APT 2212, OTTAWA ONT 993-3103
KOVACS, LESLIE, DR
MD (BRUSSELS)
FRCP(C), FACP
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, R V H
3465 COTE DES NEIGES RD, STE 3 MONTREAL 209 QUE
KOVALIK, MICHAEL, DR
B A (LOYOLA COLLEGE), MD (MCGILL)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
5160 PIE IX BLVD, MONTREAL 36 QUE
KOWAL, WALTER, DR
BA (MCGILL), DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 3550 COTE DES NEIGES,
STE 400 MONTREAL QUE
3550 COTE DES NEIGES RD, SUITE 400,
MONTREAL 109 QUE
KRAL, VOJTECH A, DR 181-560
MD (CHARLES UNIV PRAGUE)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, A M I
4145 BLUERIDGE CRES, MONTREAL QUE
KRAMER, INGEBORG, MRS 392-4896
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FURNISHING CO ORDINATOR
PHYSICAL PLANT, 840 MCGREGOR
5109 PRINCE OF WALES, MONTREAL 265 QUE
KRANTZ, WENDY M, MRS
PHYSIOLOGY, MCINTYRE MED BLDG
1310 QUEENEVILLE, APT 212, MONTREAL QUE 392-4344
KRAULIS, ILZE, DR 181-1613
B SC (MCGILL), PH D (MCGILL)

PROFESSIONAL ASSIST DEPARTMENT OF PSYCHIATRY
LECTURER DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, A M I
625 MILTON ST APT 1101, MONTREAL 130 QUE
288-0718

KRNJEVIC, KRESIMIR, DR 392-3004
MB CHB (EDINBURGH), B SC (EDIN),
PHD (EDINBURGH)
PROFESSOR ANAESTHESIA RES DEPT
MCINTYRE MED SCIENCE
653 BELMONT AVE, WESTMOUNT QUE 484-9750

KROHN, ROGER G, PROF 392-5180
BA (ST OLAF COLLEGE), M A (MINN),
PH D (MINNESOTA)
ASSOCIATE PROFESSOR SOCIOLOGY
LEACOCK BLDG
498 LANSDOWNE AVE, WESTMOUNT 217 QUE 937-5980

KU, CHAO-CHENG, PROF 392-8027
BS (TAIWAN), PHD (MCGILL)
SEQ
ASSISTANT PROFESSOR DEPT OF MINING ENGINEERING
MINING ENG & APPLIED GEO, MCCONNELL ENG BLDG
99 BURTON, GREENFIELD PARK QUE 671-8477

KUBIK, OTAKAR, MR
MCLENNAN LIBRARY - CIRC.
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1225 ST MARC APT 302, MONTREAL QUE

KUCHEL, OTTO, DR 842-1481
MD (CHARLES PRAGUE), PHD (PRAGUE),
SCIENCE DR (CHARLES PRAGUE)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
520 MITCHELL, MONTREAL QUE 738-4976

KUCHELA, KAVADAVADI S, DR 392-4853
B SC (MYSORE UNIVERSITY), M SC (MCG),
PH D (MCGILL UNIVERSITY)
PHYSICS DEPT, FOSTER RADIATION LAB
2340 GOLD, APT 204 MONTREAL 378 QUE 747-4040

KULCZYCKA, ELEONORA, MISS 392-4860
EXPERIMENTAL SURGERY, DONNER BLDG
7941 2ND AVE, MONTREAL 455 QUE

KUNSTLER, MARGARET, DR
L M C C (C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
30 THURLOW ROAD, HAMPSTEAD QUE 935-1658

KUNZ, FRANK ANDREW, PROF 392-5236
BA (SIR G WMS), MA (MCG), PH D (MCG)
ASSOCIATE PROFESSOR POLITICAL SCIENCE
POLITICAL SCIENCE, LEACOCK BLDG
5933 DOLBEAU ST, MONTREAL QUE

KURANOFF, RONALD, MR 392-5264
CHIEF ACCOUNTANT ACCOUNTING DEPARTMENT
ADMINISTRATION BLDG
72 ANGELL AVE, BEACONSFIELD QUE

KURIEN, JOHN C, PROF 392-5243
B A (HONS) (KERALA), M A (VANDERBILT U),
PHD (VANDERBILT)
ASSOCIATE PROFESSOR ECONOMICS
POLITICAL SCIENCE, STEPHEN LEACOCK BLDG
3445 STANLEY ST, APT 4, MONTREAL 110 QUE

KWAN, CHUNG CHEONG, MR 392-5285
B COM (MCGILL)
C A
INTERNAL AUDITOR ADMINISTRATION
INTERNAL AUDIT, ADMIN BLDG RM 325
3330 BEDFORD ROAD, APT 7, MONTREAL 251 QUE

L ABBATE, ANTONIO, DR 181-1760
MD (PISA)
UNIVERSITY CLINIC R V H, 2 MEDICINE R V H
4640 BOURRET AVE APT 165, MONTREAL 252 QUE
739-2935

L ESPERANCE, RICHARD R, DR
F R C P (C), C S P Q
B A (MCGILL U), DIP IN DIAG RADIOL (MCGILL U),
M D C M (MCGILL U)
LECTURER DIAGNOSTIC RADIOLOGY
ROYAL EDWARD CHEST HOSP
5940 BOURDALOUE, VILLE ST LEONARD 451 P Q

LABORDE, KATHLEEN I, MRS 842-1251
PSYCHIATRY, A M I
1260 DE GRANDPRE, DUVERNAY QUE 667-0970

LABUTE, JOHN P, PROF 392-4294
MA (HARVARD), PHD (HARVARD)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
65 PALMERSTON AVE, MONTREAL 304 QUE 733-8680

LACH, EDITH, MRS 392-5091
BA (ABITUR), MA (MCGILL), PHD (MCGILL)
VISITING ASST PROF GERMAN
GERMAN DEPT, 3666 MCTAVISH ST
495 MOUNT PLEASANT, WESTMOUNT QUE 937-5509

LACHANCE, BARBARA, MRS 392-3092
BA (PSU), MLS (PITTSBURGH)
LIBRARIAN MCLENNAN LIBRARY - REFERENCE
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2150 MAISONNEUVE, APT 603, MONTREAL 108 QUE
937-0819

LACHANCE, J R CLAUDE, DR
BSC (MONTREAL), M D (MONTREAL)
F R C P C, C S P Q
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSISTANT PROFESSOR RESIDENCY PROGRAMME
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST
3870 VAN HORNE AVE, MONTREAL QUE 739-7589

LACOURSIERE, FRANCOISE, MRS
MCGILL-MCH LEARNING CTR, 3640 MOUNTAIN ST
3580 LORNE AVE, APT 502, MONTREAL QUE

LAFFEY, ELLA, PROF 392-5187
BA (U OF PITTSBURGH),
PH D (CORNELL UNIVERSITY)
ASSISTANT PROFESSOR HISTORY
STEPHEN LEACOCK BLDG
4145 BLUERIDGE CRESC, MONTREAL 109 QUE 937-7618

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LAFLEUR, MIRIAM SYLVIA, DR 392-5128
B SC (MCG), PH D (MCG)
DEMONSTRATOR SENIOR PHYSICS
MACDONALD PHYSICS BLDG
12 MELBOURNE AVE, MONTREAL QUE 933-5966

LAFLEUR, RICHARD, DR
B A (OTTAWA), MD (OTTAWA)
LECTURER FACULTY OF DENTISTRY
FACULTY OF DENTISTRY, POINTE CLAIRE QUE
315 ELDORADO AVE, POINTE CLAIRE QUE

LAFON, MARIANNE, MRS 392-4995
B A (COPEN)
LECTURER ENGLISH
DEPARTMENT OF ENGLISH, ARTS BUILDING
9 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-5258

LAKE, VERONICA, MISS 392-8880
GRADUATE SOC OF MCGILL, 3605 MOUNTAIN STREET
235 SHERBROOKE ST WEST, APT 616,
MONTREAL 129 QUEBEC 845-7466

LAKER, MARILYN, MISS 392-4282
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LAKOFF, ROBERT S, DR 392-5453
BSC (MCGILL), MDCM (MCGILL)
HEALTH SERVICE-MCGILL, 517 PINE AVE W
4551 WILSON AVE, MONTREAL 260 QUE 392-5453

LAL, SAMARTHJI, DR
M B B S (LONDON), DIP PSYCH (MCGILL)
L R C P, M R C S, E C F M G, L M C C
PROFESSIONAL ASSIST DEPARTMENT OF PSYCHIATRY
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, MONTREAL GENERAL HOSP
4858 COTE DES NEIGES RD, APT 1502C,
MONTREAL 247 PQ 481-1286

LALA, PEEYUSH KANTI, DR 392-4895
M B B S (CALCUTTA), PH D (CALCUTTA)
E C F M G
ASSOCIATE PROFESSOR DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG
7787 BERNARD, LASALLE QUE 366-5620

LALLI, CAROL M, PROF 372-5715
B ED (BOWLING GREEN), MA (BOWLING GREEN),
PHD (UNIV OF WASHINGTON)
ASSOCIATE PROFESSOR MARINE SCIENCE CENTRE
STRATHCONA HALL
3468 DRUMMOND ST, APT 702, MONTREAL PQ 288-0468

LALLI, MICHAEL F, DR 392-4887
B S (BOWLING GREEN STATE), PH D (MCGILL)
LECTURER DEPARTMENT OF ANATOMY
ANATOMY, STRATHCONA MED BLDG
3468 DRUMMOND ST, APT 702, MONTREAL QUE 288-0468

LAM, HARRY C S, PROF 392-5142
B SC (MCGILL), PH D (M I T)
ASSOCIATE PROFESSOR PHYSICS
THEORETICAL PHY GROU, PHYSICAL SCI CENTRE
6795 SOMERLED AVE, MONTREAL 265 PQ 486-3729

LAMB, ROLLAND T, DR
B SC (MCGILL), DDS (MCGILL)
FICD, FACD
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
STRATHCONA MED BLDG
1414 DRUMMOND ST, MONTREAL 107 QUE

LAMBEK, JOACHIM, PROF 392-3041
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
371 RIVER ST, ST LAMBERT QUE 672-3448

LAMBERT, WALLACE E, PROF 392-4686
BA (BROWN UNIV), M A (COLGATE),
PHD (NORTH CAROLINA)
PROFESSOR PSYCHOLOGY
STEWART BIOLOGY BLDG
4600 RUE MICHEL BIBAUD, MONTREAL 247 QUE 735-2068

LAMONDE, YVAN, PROF 392-5216
BA (JOLIETTE), MA LETTRES HISTOIRE (LAVAL),
MA PHILOS (MONTREAL)
LECTURER FRENCH CANADA STUDIES
PROGRAMME, 3475 PEEL ST
2538 PLACE DES MONCEAUX, APT 34, QUEBEC QUE 729-0144

LAMONTAGNE, GINETTE, MISS 392-4322
FACULTY OF GRAD STUDIES, DAWSON HALL
1423 TOWERS, APT 1, MONTREAL 108 QUE 932-6459

LANDOLT, HERMANN A, PROF 392-5198
DIPLOME (SORBONNE), PHD (BASLE)
ASSOCIATE PROFESSOR
INSTITUTE OF ISLAMIC STUDIES
ISLAMIC STUDIES, STEPHEN LEACOCK
445 VICTORIA AVE, MONTREAL 217 QUE 931-8433

LANDRY, PETER CORY, MR 392-8825
B ENG (MCGILL), MA (COLUMBIA), MSC (MCGILL)
QAPT
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FAC OF EDUCATION, EDUCATION BLDG
173 MORRISON AVE, MONTREAL 305 QUE 733-5666

LANE, MARCIA E, MRS
SESSIONAL LECTURER FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
520 DE GASPE ST, APT 304 NUN S ISLAND,
MONTREAL 201 QUE

LANG, CELIA, MISS 392-4209
BSC (MCGILL)
PHYSIOLOGY DEPT, MCINTYRE MEDICAL BLDG
1734 CEDAR AVE, MONTREAL QUE 932-8737

LANG, LAWRENCE, MR 392-5317
CGA
FINANCIAL ANALYST ADMINISTRATION
COMPTROLLER S OFFICE, ADMIN BLDG
4967 CUMBERLAND AVE, MONTREAL 265 QUE 489-4534

LANG, SIDNEY B, PROF 392-5435
B SC (COLORADO SCH MINES),
PH D (UNIV OF CALIFORNIA)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
85A WOODLAWN DR, DOLLARD DES ORMEAUX QUE 683-6953

LANGFORD, WILLIAM F, PROF 392-4295
B SC (HON) (QUEEN S UNIVERSITY),
PH D (CAL TECH)
ASSISTANT PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
5055 CAVENDISH BLVD, MONTREAL 265 QUE 488-7298

LANGLEBEN, M PHILLIP, PROF 392-5127
BSC (MCGILL), PHD (MCGILL)
PROFESSOR PHYSICS
PHYSICS DEPT, PHYSICS BLDG
4753 GROSVENOR AVE, MONTREAL QUE 484-6852

LANGSTADT, ROBERT, MR
DIPLOMA (NUREMBURG), DIPLOMA (FLORENCE)
LECTURER ART HISTORY
ARTS BLDG
3794 HAMPTON AVE, MONTREAL QUE 486-3365

LANGTON, FRANCES M J, MISS 392-4581
BIOLOGY DEPT, STEWART BIOLOGY BLDG
4821 MAYFAIR AVE, MONTREAL 265 QUE 486-2041

LANGUIRAND, JACQUES, MR 392-4973
B A (U OF M)
SPECIAL LECTURER ENGLISH
ENGLISH DEPT, ARTS BLDG
513 COTE ST ANTOINE RD, WESTMOUNT 217 PQ 482-4127

LANTHIER, ANDRE, DR
BA (MONTREAL), MD (MONTREAL)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, NOTRE DAME HOSPITAL
1880 DE LA DUCHESSE, ST BRUNO QUE 876-6620

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LAPIERRE, CLAUDETTE, MISS 392-4905
CTRE FOR CONT EDUC, STRATHCONA HALL
268 MAY AVE, VERDUN 204 QUE 769-4034

LAPIERRE, LAURIER, PROF 392-5191
BA (TORONTO), M A (TOR), PHD (TORONTO)
ASSOCIATE PROFESSOR HISTORY
LEACOCK BLDG
75 CHESTERFIELD AVE, MONTREAL QUE 488/9348

LAPIN, A W, DR
BA (MCGILL), MD CM (MCG)
MRCP(LOND), FRCP(C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CL MED M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
4119 SHERBROOKE ST W, MONTREAL QUE 932-1906

LAPIN, IRVING, DR
BSC (MCGILL), MDCM (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
MONTREAL CHEST CENTRE, 3650 ST URBAIN ST,
MONTREAL QUE 733-6588

LAPLAINE, JEAN PIERRE, MR 453-6580
DEPT OF HORTICULTURE, MACDONALD COLLEGE
12 EAST COTTAGES, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE QUE 453-1932

LAPLANTE, MICHAEL, DR
BA (LOYOLA COLLEGE), MD-CM (MCGILL)
F R C S (C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE
615 BELMONT AVE, WESTMOUNT 217 QUE 937-9889

LAPOINTE, CONSTANCE K, DR
BA (UNIV COLORADO),
MD (MED COLL OF PENNSYLVANIA)

DEPUTY DIRECTOR-COMMUNITY MED PROGRAMME
RESIDENCY PROGRAMME, 3830 LACOMBE AVE,
MONTREAL 249 QUE
1910 LAIRD BLVD, MONTREAL 304 QUE

LAPP, WAYNE S, PROF 392-3081
BSA (TORONTO), M SA (TOR), PHD (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
MED RESEARCH SCHOLAR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MEDICAL BLDG
40 PILON AVE, BEACONSFIELD QUE 697-6200

LARINI, GIAN PAOLO, MR
HEALTH SERVICE-MCGILL, 517 PINE AVE
REDDY MEMORIAL HOSP, 4039 TUPPER ST,
MONTREAL QUE

LAROCHE, FRANCOISE C Y, MRS
BACCALAUR (LOUVAIN), MA (LOUVAIN),
LICENCE (LOUVAIN)
PSYCHIATRY, ALLEN MEMORIAL HOSP
3475 VAN HORNE APT 6, MONTREAL 251 QUE

LAROCHE, GILLES, DR
PROFESSOR MARINE SCIENCE CENTRE
772 SHERBROOKE ST WEST
4085 GAGE RD, MONTREAL PQ 342-5052

LAROCHELLE, GUY, DR
BA (MONTREAL), MD (MONTREAL)
FRPS, CPS
LECTURER DEPARTMENT OF PSYCHIATRY
QUEEN MARY VETERANS HSP, MONTREAL GENERAL HOSP
35 BELOEIL ST, MONTREAL QUE

LASZLO, CHARLES A, PROF 392-4324
B ENG (MCGILL), M ENG (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
DIRECTOR FACULTY OF MEDICINE
ACTING DIRECTOR
DEPT OF ELECTRICAL ENG, MCCONNELL ENG BLDG
200 COROT ST APT 112, NUN S ISLAND,
MONTREAL 201 QUE 769-9747

LASZLO, DOREEN E, DR
B ED (MCGILL), D D S (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
MONTREAL GENERAL HOS, MONTREAL 109 PQ
1414 DRUMMOND ST, MONTREAL QUE

LATOUCHE, DANIEL, PROF 392-5216
B A (U DE MONTREAL), B SC (U DE MONTREAL)
ASSISTANT PROFESSOR FRENCH CANADA STUDIES
FRENCH CANADA STUDIES, PROGRAMME, 3475 PEEL
4000 DUPUIS AVE APT 8, MONTREAL 249 QUE

LATOUR, JEAN-PAUL A, DR 181-251
B SC (MCGILL), MDCM (MCGILL)
FRCPC
PROFESSOR DEPT OF OBSTETRICS & GYNAECOLY
ASSOCIATE PROFESSOR PATHOLOGY SERVICE
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
DEPT OF PATHOLOGY(TEACH), WOMENS PAV R V H,
687 PINE AVE W
4820 DE MAISONNEUVE BLVD, MONTREAL QUE 937-1737

LAUNAY, JEAN E L, PROF 392-4672
CHEVL
BACCALAURE (PARIS), DES (PARIS),
AGREGATION (UNIV DE FRANCE)
PROFESSOR FRENCH
ROMANCE LANGUAGES, PETERSON HALL
4003 OXFORD AVE, MONTREAL 28 QUE 488-5821

LAUZON, ARNEL, MR
SUPERVISOR PARKING & SECURITY
PHYSICAL PLANT, 840 MCGREGOR
7151 CHAMPCHEVRIER, VILLE D ANJOU QUE 392-5760

LAVERGNE, RODOLPHE C, PROF 392-5935
BA (U OF MONTREAL), B L S (MCG), MLS (MCGILL)
QLA, CPLQ
ASSOCIATE PROFESSOR
GRAD SCHOOL OF LIBRARY SCIENCE
3459 MOUNTAIN ST
900 GOHIER ST, ST LAURENT QUE 747-1798

LAVERS, ROBERT ALLAN, PROF
B A (BISHOPS), M SC (MCG), PH D (MCG)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
4525 KENSINGTON ST, MONTREAL QUE 481-1838

LAVERY, ROBERT E, PROF 392-8898
BA (ST JOSEPH UNIV), B ED (UNIV DE MTL),
LIC PED (UNIV DE MTL), LICENSE (UNIV MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN OF EDUCATIONAL ADMINISTRATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST,
MONTREAL QUE
383 44 AVE, LACHINE QUE

LAWAND, THOMAS A, MR 453-6580
C P E Q
B ENG (MCG)
BRACE RESCH INSTITUTE, MACDONALD COLLEGE
5767 PLANTAGENET ST, MONTREAL QUE 737-0433

LAWFORD, RICHARD G, MR
BSC (BRANDON), M SC (ALBERTA)
SESSIONAL LECTURER METEOROLOGY
BURNSIDE HALL
1420 QUENNEVILLE, APT 116, MONTREAL QUE
332-1843

LAWLOR, WILLIAM M, PROF 392-8811
B COMM (LOYOLA MONTREAL), B ED (U DE M),
PH D (OTTAWA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
1000 36TH AVE, LASALLE QUE 366-7458

LAWRENCE, DONALD G MCC, DR 842-1251
B SC (BISHOP S), M D C M (MCGILL)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
ASSOCIATE PROFESSOR DEPARTMENT OF NEUROANATOMY
ASSOCIATE PROFESSOR DEPARTMENT OF ANATOMY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST,
MONTREAL 112 PQ
631 GROSVENOR AVENUE, WESTMOUNT 217 QUE
484-8000

LAWRENCE, THEO, MRS
CATALOGUING, MCLENNAN LIBRARY
1114 DE MEULLES ST, ST BRUNO PQ 653-7364

LAWRUK, BOHDAN, PROF 392-5961
MASTER (LWOW UNIVERSITY),
PH D (LWOW AND MOSCOW), HABILITAT (WARSAW)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
3425 STANLEY, APT 405, MONTREAL QUE 288-8603

LAWSON, NORMAN C, PROF 453-6580
B SC (GLASGOW), M SC (MCG), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF AGRONOMY
AGRONOMY, MACDONALD COLLEGE 800, QUEBEC
4 CAMBRIDGE RD, BAIE D URFE QUE 453-7764

LAWSON, RAY N, DR 842-1251
BA (WESTERN ONT), MD (WESTERN ONT),
DIP SURG (MCGILL)
F R C S C
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, R V H
1310 GREENE AVE, MONTREAL 215 QUE

LAWTON, RICHARD, PROF 392-5117
B MUSIC (MCGILL), M OF MUSIC (INDIANA)
ASSISTANT PROFESSOR FACULTY OF MUSIC
CHAIRMAN PERFORMANCE DEPT
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
400 LANSDOWNE, APT 412, ST BRUNO QUE

LAYBOURN, RONALD, PROF 392-8065
MA (EDINBURGH)
C A
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
1315 RAIMBAULT, ST LAURENT QUE

LAZARIDES, ADRIANA, MISS 392-4964
ACQUISITIONS, MCLENNAN LIB
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279-3760

LE DAIN, CAROL LOUISE, MISS 392-5252
OFFICE OF VICE PRINCIPAL, PROFESSIONAL AFFAIRS,

ADMINISTRATION BLDG
3325 DAWES ST, LACHINE QUE 637 9602
392-8885

LEARD, HUGH M, PROF
BA (SASKATCHEWAN), B ED (SASK), MA (MINN)
ED D (ARIZONA STATE UNIV)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
5 STEWART PARK, MACDONALD COLLEGE QUE 453-5987

LEBLANC, JEAN LUC, DR
BA (MONTREAL), MD (MONTREAL)
LECTURER DEPT OF PEDIATRICS
2300 TUPPER STR, MONTREAL 108 QUE
128 BRIXTON, ST LAMBERT QUE 671-7778

LEBLANC, RAYMOND P, DR
FRCS(C) OOA
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY ROOM 1322, MONTREAL GENERAL HOSP, 1650 CEDAR AVE
15 PEARSON PLACE, KIRKLAND PQ 937-1525

LECLERC, MICHELE, MRS 392-8051
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY
1380 VICTOR MORIN, LAVAL QUE 667-5041

LECLERCQ, RICHARD, MR 392-5727
B A (OTTAWA), B PHIL (OTTAWA),
L SC S&C (INST CATH DE PARIS)
LECTURER CTR FRENCH 2ND LANG
CTRE FRENCH AS A SECOND LANGUAGE,
3438 MCTAVISH ST
3555 ATWATER ST, APT 416, MONTREAL 109 QUE

LEDUC, FERNANDE, MRS 392-4530
MUSIC LIBRARY, 555 SHERBROOKE ST. W.
305 ST CHARLES BLVD W, APT 404, LONGUEUIL QUE

LEE, AUSTIN, DR
M B CHB (EDIN)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, A M I
17 ROSELAWN CRESCENT, T M R QUEBEC 842-1251

LEE, BRENDA M, MISS 392-5998
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
2410 MADISON, APT 16, MONTREAL 261 QUE

LEE, HOWARD CHONG, PROF 392-4325
B SC ENG P (MANITOBA), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF BIOCHEMISTRY
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
DEPT OF ELECTRICAL ENG, MCCONNELL ENG BLDG
161 DE BOURGOGNE, ST LAMBERT QUE 672-8838

LEE, JOHN H S, PROF 392-5466
B ENG (MCG), M SC (MIT), PH D (MCG)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, THOMAS WORKMAN ENG BLDG
425 ST JOSEPH BLVD W, OUTREMONT QUE 277-3370

LEE, JONATHAN K P, PROF 392-4838
B ENG (MCGILL), M SC (MCG), PH D (MCGILL)
ASSISTANT PROFESSOR PHYSICS
PHYSICS DEPT, FOSTER RADIATION LAB
4637 DRAPER AVE, MONTREAL 261 QUE 841-5710

LEE, LAURA A, MISS 392-5415
DEPT OF ELECTRICAL ENG, MCCONNELL ENGR BLDG
8 BUSSIERES, P O BOX 12 VECHERES PQ 583-3256

LEE, MARJORIE, MS
CATALOGUING DEPT, MCLENNAN LIBRARY
128 ISABEL AVE, GREENFIELD PARK QUE 671-8978

LEE, SIDNEY S, DR
B S (YALE), M P H (YALE), DR P H (YALE)
M D (YALE)
PROFESSOR DEPT OF EPIDEM & HEALTH
ASSOCIATE DEAN DEPT OF EPIDEM & HEALTH
DEPT OF EPIDEM & HEALTH, 1110 PINE AVE W
385 VIVIAN AVENUE, TOWN OF MT ROYAL QUE

LEEMET, JUHAN, MR 392-5387
B ENG (MCGILL)
PROFESSIONAL ASSIST DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
4516 HINGSTON AVE, MONTREAL 261 QUE

LEET, PAULINE MAY TWEEDIE, MISS 392-5841
GEOLOGICAL SCIENCES, F.D. ADAMS BLDG
6186 N D G AVE, APT 27 MONTREAL QUE 481-5558

LEGGETT, WILLIAM C, PROF 392-4655
BA (WATERLOO), MSC (WATERLOO), PHD (MCGILL)
ASSOCIATE PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
161 SOMMERHILL AVE, DOLLARD DES ORMEAUX QUE 683-3253

LEGUILLOU, JEAN YVES, PROF 392-4616
LICENSE (SORBONNE), DIP ROUSSE (SORBONNE),
PH D (SORBONNE)
VISITING PROFESSOR RUSSIAN
RUSSIAN, 3487 PEEL ST
42 MONTAGNE ST, CP 13 RAWDON PQ

LEHMAN, G W, DR
BA (MCGILL), MD CM (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
ROYAL VICTORIA HOSPITAL, 687 PINE AVE MONTREAL
1390 SHERBROOKE ST W, MONTREAL QUE

LEHMANN, FRANCOIS, DR
B A (U OF M), M D C M (MCGILL)
LECTURER FACULTY OF MEDICINE
654 CHARLEVOIX, MONTREAL 108 QUE
565 DUBLIN, MONTREAL 104 QUE 937-9251

LEHMANN, HEINZ EDGAR, DR 181-260
BA (BERLIN UNIV), MD (BERLIN)
PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT CHAIRMAN DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, 6875 LASALLE BLVD, VERDUN 204 QUE
6603 LASALLE BLVD, VERDUN QUE 766-8511

LEITH, WILFRED, DR
BA (MT ALL), MD CM (DAL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL VICTORIA HOSPITAL
20 HIGHFIELD AVE, TOWN OF MOUNT ROYAL QUE

LELLA, JOSEPH W, PROF 392-5177
A B (ST JOS SEM COL), MA (FORDHAM),
PH D (UNIV OF N CARDINA)
ASSISTANT PROFESSOR SOCIOLOGY
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
SOCIOLOGY, LEACOCK BLDG
19 WINCHESTER AVE, WESTMOUNT QUE

LEMAY, LOUIS PHILLIPPE, DR 343-7113
BA (U OF OTTAWA), MS (U OF MICHIGAN)
VISITING LECTURER FACULTY OF DENTISTRY
STRATHCONA DENT BLDG
55 KINDERLEY ST, T M R QUE 731-5821

LEMIEUX, LINDA, MRS 392-4515
BA (DALHOUSIE), BLS (MCGILL)
LIBRARIAN REDPATH LIBRARY
UNDERGRAD LIBRARY PROJ, REDPATH LIBRARY
428 GROSVENOR AVE, MONTREAL QUE

LEMIEUX, PAUL RENE, MR 392-8247
MIDDLE MANAGEMENT 2 COMPUTING CENTRE
BURNSIDE HALL
711 PLACE VALIQUETTE, BROSSARD QUE

LEMON, ROBERT E, PROF 392-4661
B SCIENCE (WESTERN ONTARIO), M SC (W ONT),
PH D (WESTERN ONTARIO)
ASSOCIATE PROFESSOR BIOLOGY
STEWART BIOLOGY BLDG
92 DRAYTON ROAD, POINTE CLAIRE QUE 695-9310

LEMOYNE, BERYL L, MRS 392-5872
B A (MCGILL), B L S (MCGILL), M L S (MCGILL)
LIBRARIAN REDPATH LIBRARY
4141 WILSON AVE, MONTREAL 260 PQ 489-2664

LEMOYNE, ROY E, MR 392-5409
B ARCH (MCG)
SESSIONAL LECTURER SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNELL ENG BLDG
4141 WILSON AVE, MONTREAL 28 QUE

LEMYZE, JEAN CLAUDE, PROF 392-5483
BA (PARIS), MA (U OF MONTREAL)
DIRECTOR UNIVERSITY LANGUAGE LABORATORY

ASSISTANT PROFESSOR FRENCH
INSTRUCTOR FRENCH
FRENCH, PETERSON HALL
5590 CANTERBURY AVE, MONTREAL 250 QUE 731-5731

LEONE, CLOTILDA, MISS 392-5473
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
7438 BERRI, MONTREAL 327 QUE

LEREDE, JEAN, PROF 392-4678
BSC (ECOLE LIB DES SCI),
L L (ECOLE LIB DES SCI),
DIP SC POL (PARIS), MA (DROIT) (FRANCE)
DIRECTOR OF FRENCH SUMMER SCHOOL
ASSISTANT PROFESSOR FRENCH
FRENCH SUMMER SCHOOL, PETERSON HALL
1110 SHERBROOKE ST W, MONTREAL 110 QUE 935-5597

LESIEUR, BERTI, MRS 392-3065
BA (OTTAWA), MLS (MCGILL)
LIBRARIAN MEDICAL LIBRARY
MCINTYRE MEDICAL BLDG
10 DAVID PLACE, DOLLARD DES ORMEAUX QUE 684-0878

LESTER, EVA, DR 392-5019
MD (ATHENS)
QPA
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
LECTURER SCHOOL OF SOCIAL WORK
SCHOOL OF SOCIAL WORK, 3506 UNIVERSITY
660 MURRAY HILL, MONTREAL 217 QUE 488-2264

LEUTWILER, HEINZ, DR 392-4913
DR SC MATH (ETH ZURICH)
PROFESSIONAL ASSOC MATHEMATICS
MATHEMATICS, BURNSIDE HALL
4966 VICTORIA AVE, MONTREAL 247 QUE 737-4356

LEVERT, PIERRE, MR 453-6580
AGRIC PHYSICS, MACDONALD COLLEGE 800, QUE
7 LEGAULT ST, STE ANNE DE BELLEVUE QUE 453-6431

LEVESQUE, HELEN, MISS 392-5432
DEPT OF CHEMICAL ENG, MCCONNELL ENGR BLDG
1267 ST MARK STREET, APT 5, MONTREAL QUEBEC

LEVIN, DOUGLAS CLIFTON, DR
MB B S (LONDON ENGLAND),
MB B S (LONDON ENGLAND)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE STE CATHERINE,
MONTREAL 249 QUE
176 BEDBROOK, MONTREAL WEST 263 PQ 481-9229

LEVINE, ALLAN, MR 392-5023
BSC (MCGILL)
SR PROGRAMMER MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
135 DEGUIRE ST, APT 214, VILLE ST LAURENT QUE

LEVINE, SEYMOUR, MR 392-5409
B ENG (MCG), M ENG (MCG)
SESSIONAL LECTURER SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNELL ENG BLDG
4995 HINGSTON AVE, MONTREAL QUE

LEVITAN, BENJAMIN A, DR
BSC (MCGILL), MD CM (MCG), MSC (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
3545 COTE DES NEIGES RD, SUITE 114,
MONTREAL QUE

LEVITT, KAROLINE, PROF 392-5235
B SC (LOND), M A (TOR), PH D (TOR)
ASSOCIATE PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
1570 AIMSLEY DRIVE, OTTAWA 5 ONTARIO

LEVY, JOSHUA, DR
M A (HEBREW UNIV ISRAEL),
PHD (HEBREW UNIV ISRAEL)
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY JEW GEN HOSP
5501 BRADFORD PL, MONTREAL QUE

LEVY, MORTIMER, DR 392-4221
BSC (MCGILL), MD (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
MED RESEARCH SCHOLAR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, ROOM 204 MAIN,
ROYAL VICTORIA HOSPITAL
5758 GLENARDEN, COTE ST LUC, MONTREAL 269 QUE

LEWIS, BERYL L, MRS
DEPT OF PATHOLOGY(TEACH), PATHOLOGICAL INST
4020 KINDERSLEY AVE, APT 7, MONTREAL 308 QUE

LEWIS, ELIZABETH A, MRS 392-4308
BA (MCGILL), B L S (MCG)
LIBRARIAN MCLENNAN LIBRARY - RARE BOOKS
RARE BOOK DEPT, MCLENNAN LIB
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LEWIS, JOHN B, PROF 392-5989
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
DIRECTOR REDPATH MUSEUM
PROFESSOR MARINE SCIENCE CENTRE
MARINE SC CENTRE, 3677 PEEL ST
3793 GREY AVE, NDG MONTREAL QUE 481-3804

LI, KUO LEE, MR 392-5065
LLM & MLS (MCGILL)
LIBRARIAN LAW LIBRARY
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3505 STE FAMILLE ST, APT 1006, MONTREAL QUE

LIBMAN, ISRAEL, DR
BA (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
M N I
493 MITCHELL AVE, TOWN OF MOUNT ROYAL PQ 735-1993

LIDDELL, FRANCIS DOUGLAS, PROF 392-8052
BA (CAMBRIDGE), MA (CAMBRIDGE)
F I S
PROFESSOR DEPT OF EPIDEM & HEALTH
3775 UNIVERSITY ST
666 SHERBROOKE ST W, APT 1406, MONTREAL 111 QUE 843-8573

LIDSTONE, PEARL, MRS
BUILDING SUPT 3610 MCTAVISH STREET
3610 MCTAVISH ST
3610 MCTAVISH ST, MONTREAL QUE

LIEBLEIN, LEANORE, PROF 392-8269
B A (CITY COLLEGE OF NEW YORK),
A M (U OF ROCH), PH D (U OF ROCHESTER)
ATEQ MLA
ASSIST PROF ENGLISH
ARTS BLDG
3524 HUTCHISON, APT 48 MONTREAL 130 QUE 844-4835

LIGHTFOOT, DAVID WM, PROF 392-5839
B A HON (LONDON), MA (MICHIGAN), PHD (MICHIGAN)
ASSISTANT PROFESSOR LINGUISTICS
3465 PEEL ST
4212 MELROSE, N D G, MONTREAL QUE 484-3343

LIMSOO, KIUN YEE, MR 392-5914
BSC (LONDON)
ENGR LIBRARY, MACDONALD ENGR BLDG
3435 BARCLAY AVE, APT 12, MONTREAL 251 733-8922

LIN, D T, DR
B SC (MCG), MD CM (MCG)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, R V H
406 BEVERLEY AVE, TOWN OF MT ROYAL 304 QUE 861-8082

LIN, PAUL T K, PROF 392-5191
LL D/PHILATHEA
BA (MICHIGAN), M A (FLETCHER), MA (HARVARD)
ASSOCIATE PROFESSOR HISTORY
HISTORY, STEPHEN LEACOCK BLDG
236 COROT ST, NUN S ISLAND, MONTREAL QUE

LINDEMAN, YEHUDY, MR 392-4992
CANDIDATE S DEG (AMSTERDAM),
DOCTORIAL (AMSTERDAM), PH D (HARVARD)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG

1100 MCGREGOR AVE, APT 1209, MONTREAL 112 QUE

LINDSAY, C CRAWFORD, DR
B A (UNIV OF MTL), M D C M (MCGILL)
F R C S (C), F A C O G
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
1650 CEDAR AVE, MONTREAL 109 QUE
11 NORTHCOTE RD, HAMPSTEAD, MONTREAL 254 QUE

LING, DANIEL, DR 392-5975
MSC (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF OTOLARYNGOLOGY
SCH HUMAN COMM DISORDERS, BEATTY HALL
69 NELSON RD, MONTREAL 263 QUE 484-9590

LINGARD, WILLIAM F, DR
FRCS, CUA
LECTURER DEPARTMENT OF SURGERY
SURGERY MGH, 1650 CEDAR AVE
MONTREAL GENERAL HOSP, 1615 CEDAR,
MONTREAL 109 QUE 488-9355

LIPKIN, JOHN PHILLIP, PROF 392-8874
BA (GETTYSBURG COLLEGE), M A T (BROWN U),
PHD (MICHIGAN)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
BOX 293, MACDONALD COLLEGE QUE 453-5226

LIPKUS, BEVERLY ANN, MISS 392-5319
BUDGET OFFICE, ADMINISTRATION BLDG
3455 AYLMER ST, APT 201, MONTREAL QUE 844-7289

LIPP, SOLOMON, PROF 392-4601
BS (CITY COLLEGE NY), M S (C C N Y),
PH D (HARVARD)
PROFESSOR SPANISH
DEPARTMENT CHAIRMAN SPANISH
SPANISH DEPT, 3491 PEEL ST
5550 LYNDALE AVE, COTE ST LUC QUE 481-6785

LISBONA, ANDRE, DR
P C B (MONTPELLIER FRANCE), M D (U OF M)
L M C C, C P S Q, F R C P S(C)
LECTURER DIAGNOSTIC RADIOLOGY
JEWISH GENERAL HOSP, 3775 COTE STE CATHERINE
5617 BORDEN, MONTREAL 266 PQ 487-4819

LITTLE, B ELEANOR, MRS 392-4940
BSC (MCGILL), BLS (MCGILL)
LIBRARIAN MCLENNAN LIBRARY - CAT
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4256 ROYAL AVE, MONTREAL 261 QUE 487-4109

LITTLE, JOHN MILTON, DR
B A (LOYOLA), M D C M (MCGILL),
CERT OPHTH (QUE & ROYAL COL)
DIP (H M BRD OF OPHTH)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPTH MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
1 DEAR AVE, POINTE CLAIRE 720 P QUE

LIVINGSTONE, ANN, MRS
CATALOGUING, MCLENNAN LIBRARY
4399 WILSON AVE, MONTREAL 260 QUE 487-5638

LIVINGSTONE, PATRICIA, MRS
LECTURER SCHOOL FOR GRAD NURSES
WILSON HALL
2460 BENNY CR, APT 120, MONTREAL 261 QUE

LLOYD, TREVOR, PROF 392-8082
B SC (BRISTOL), PH D (CLARK U S A),
D SC (BRISTOL)
PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
4875 FULTON AVE, MONTREAL 248 PQ 731-9900

LOBELLE, JAN, PROF 392-8861
BA (GHENT UNIV), LIC SC EC (GHENT UNIV),
MA (MIDDLEBURY)
CHAIRMAN OF EDUCATION IN SECOND LANGUAGES
3700 MCTAVISH ST
2901 DOUGLAS ST, MONTREAL 301 QUE 738-3685

LOCKE, JOHN CRAIG, DR 181-581
B SC (MCGILL), MD CM (MCG), MED SC D (COLUMBIA)
FRCS (C), FACS, RCPS
PROFESSOR DEPT OF OPHTHALMOLOGY
OPTHALMOLOGY, R V H
1 CRESSY ROAD, MONTREAL QUE 842-4024

LOCKYER, JAMES W I, MR 392-5267
L L B (NOTTINGHAM)
ASSISTANT PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
3648 DUROCHER, MONTREAL PQ

LODGE, MARGARET M, MRS 453-6580
LIBRARY MACDONALD COLL, LIBRARY,
MACDONALD COLLEGE
7 WATTERSON RD, BAIE D URFE QUE 453-3627

LODGE, MARY LORRAINE, MISS 392-5924
CIRCULATION MCLENNAN LIB, 3459 MCTAVISH ST
3465 HUTCHISON APT 601, MONTREAL 130 QUE
849-3804

LOFTHOUSE, ENID H, PROF 392-8822
BA (SASKATCHEWAN), B ED (ALBERTA),
M T MATH (SIR GEORGE WILLIAMS)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
1635 18TH AVE N W, CALGARY ALTA 289-5168

LOGAN, ELIZABETH, MS
BSC (ACADIA), MASTERS (YALE)
C N A, CAUSN, ANPQ
PROFESSOR SCHOOL FOR GRAD NURSES
GRAD NURSES, 3506 UNIVERSITY ST
1540 SUMMERHILL AVE, APT 201 MONTREAL QUE

LOHRENZ, JOHN GEORGE, DR 392-5444
MD (MANITOBA)
DIRECTOR HEALTH SERVICE - MCGILL
ASSOCIATE PROFESSOR HEALTH SERVICE - MCGILL
HEALTH SERVICE-MCGILL, 517 PINE AVE W
1ST CONCESSION RD, AT HELSTAN QUE 264-5228

LOMASNEY, LOIS, MRS 392-5998
FAC. OF MANAGEMENT, BRONFMAN BLDG
4374 BEACONSFIELD AVE, MONTREAL 261 QUE
489-3076

LONG, RICHARD C, PROF
B SC (MCGILL), M D (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY DEPT, R V H
1374 SHERBROOKE ST W, MONTREAL QUE

LORD, JEAN GUY, MR
BLDG SUPERINTEND 3575 UNIVERSITY ST
3575 UNIVERSITY ST
3575 UNIVERSITY ST, APT 100, MONTREAL QUE

LORD, LESLIE H, DR 392-3071
DIPLOMA (IMP CLLG TROPCL AGR), M S (CORN),
D V M (ONTARIO VET COLLEGE)
DIRECTOR MCINTYRE PARK ANIMAL CENTRE
DIRECTOR FACULTY OF GRAD STUDIES & RES
MCINTYRE ANIMAL CTR, MCINTYRE MEDICAL BLDG
470 BOURKE AVE, APT 2D DORVAL QUE 636-1577

LORENZETTI, DARIO W C, DR
B SC (MCGILL), MDCM (MCGILL),
F R C S (C)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPTH MTL GEN HOSP NO 132, 1650 CEDAR AVE
203 LAZARD AVE, T M R QUE 937-1525

LOROWAY, RICHARD, MR 392-8031
TELEVISION PROD INSTRUCTIONAL COMM CENTRE
TELE AUDIO RM 417 B, CHEMISTRY BLDG
100 COTE VERTU, APT 306, MTL QUE 336-3234

LOROWAY, SUZETTE, MRS 392-5132
DEPT OF METEOROLOGY, BURNSIDE HALL
1420 QUENNVILLE APT 107, MONTREAL QUE

LOUGH, JOHN OBERLIN, DR
FRCP(C)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
1650 CEDAR AVE, MONTREAL 109 QUE
450 LANSDOWNE AVE, MONTREAL 217 QUE 937-6011

LOULOU, RICHARD J, PROF 392-5871
BS (POLYTECHNIQUE-PARIS),
PHD (CALIFORNIA-BERKELEY)
ASSISTANT PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG

768 ST CLARE, TOWN OF MOUNT ROYAL, QUEBEC 305 737-4519

LOUTFI, MARTHA, PROF 392-5248
AB (WELLESLEY COLLEGE),
PH D (U OF CALIFORNIA BER)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
HABITAT 67 APT 624, MONTREAL 103 QUE 866-1239

LOUTFI, MOHAMED, PROF 392-5230
BACHELOR S (UNIV OF CALIFORNIA),
PH D (CALIFORNIA BERKELEY)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
HABITAT 67 APT 624, MONTREAL QUE 866-1239

LOWE, NORMA, MISS 392-8809
BA (SGWU)
SESSIONAL LECTURER FACULTY OF EDUCATION
3700 MCTAVISH STREET
147 NORTHVIEW AVE, MONTREAL 263 PQ 482-4735

LOWENTHAL, JULIUS, PROF 392-4272
B SC (MONTREAL), M SC (MONTREAL),
PHD (MONTREAL)
PROFESSOR PHARMACOLOGY AND THERAPEUTICS
PHARM & THER, MCINTYRE MED BLDG
3 WESTMOUNT SQUARE, APT 411, MONTREAL 215 QUE

LUCAS, ALEC, PROF 392-5005
BACHELOR S (QUEEN S), M A (QU), A M (HARV)
PH D (HARVARD)
PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
3421 DRUMMOND ST, APT 48 MONTREAL QUE AV8-5003

LUCAS, CHRISTINE W, MRS 392-8888
B A (ITHACA COL) M A (BUFFALO)
SESSIONAL LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
BOX 5602, CARMEL, CALIFORNIA 93921

LUDKE, INGE, MRS 392-4976
ART HISTORY, ARTS BLDG
5488 AVONMORE APT 204, MONTREAL QUE 481-8225

LUNDELL, FREDRICK W, DR
B A (U B C), M A (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH MTL CHLDS HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
1538 SHERBROOKE ST W, MONTREAL QUE

LUNDGREN, JAN, PROF 392-8084
CANDPHIL (STOCKHOLM), FIL MAG (STOCKHOLM),
PHD L PHIL (STOCKHOLM)
ASSOCIATE PROFESSOR GEOGRAPHY
BURNSIDE HALL
50 RUE D AUVERGNE, PREVILLE QUE 672-6096

LUNDMAN, SUSAN BRENDA, MS 392-4210
B SC (MCGILL)
ASSISTANT RESIDENCE DIRECTOR OF MOLSON HALL
MENS RESIDENCES ADMINIST, MOLSON HALL
21 SPRUCESIDE, HAMILTON 12 ONTARIO 525-2808

LUPU, HARVEY, DR
FRCP(C) FAAP
DEMONSTRATOR DEPT OF PEDIATRICS
MONTREAL CHILDRENS HOSP
380 LAZARD AVE, MONTREAL 305 QUEBEC 731-6366

LUTON, MICHAEL J, DR 392-4709
B MET (SHEFFIELD) PHD (MCGILL)
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
3601 STE FAMILLE APT 1609, MONTREAL 130 QUE 288-2032

MAC ISAAC, STEPHEN G, DR
BA (ST F X)
QUE MED ASSOC
LECTURER DEPARTMENT OF SURGERY
SURG-UROL MTL GEN HOSP, 1650 CEDAR AVE
3550 COTE DES NEIGES RD, MONTREAL QUE 931-8302

MACARTHUR, JAMES D, PROF 453-6580
BSCF (NEW BRUNSWICK)
ASSOCIATE PROFESSOR MORGAN ARBORETUM
ASSOCIATE PROFESSOR WOODLOT MANAGEMENT
WOODLOT MANAGEMENT, MACDONALD COLLEGE 800, QUE
723 VICTORIA DR, BAIE D URFE QUE 453-2932

MACARTHUR, JAMES L, DR
MD (U W ONTARIO)
MRCOG, FACS, FRCS(C)
SCHOOL FOR GRAD NURSES, MONTREAL GENERAL HOSP,
1650 CEDAR AVE
654 ROSLYN, MONTREAL 217 QUE

MACAULAY, JOHN C, DR 181-1850
MB CHB (GLASGOW)
ASSTT PHYSICIAN
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
DIV OF DERMATOLOGY RVH
640 MURRAY HILL, WESTMOUNT MONTREAL PQ

MACBRAYNE, SHEILA F, MISS 392-5100
LLB (GLASGOW), LLM (MCGILL)
INST OF AIR & SPACE LAW, 3644 PEEL ST
3454 STANLEY APT 2, APT 2 845-8091

MACCALLUM, EVAN A, DR
B A (MCGILL), MD CM (MCGILL)
FRCS(C)
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS &GYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
MTL GENERAL HOSPITAL, 1650 CEDAR AVE,
MONTREAL QUE

MACDONALD, A D, DR
BSC (ACADIA), MDCM (MCGILL)
M R C P, F R C P (C), F A C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
3550 COTE DES NEIGES RD, SUITE 110 MONTREAL 109 QUE 731-0437

MACDONALD, CHARLES C, DR
B A (MCGILL), MD CM (MCG)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
6950 FIELDING AVE, MONTREAL QUE

MACDONALD, J. F., MR
B SC (MCG), MD CM (MCG)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
1347 ST CLARE RD, TOWN OF MT ROYAL QUE

MACDONALD, JANET, MISS 392-4356
B A (QUEEN S), B SW (U B C), M S W (U B C)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
2150 MAISONNEUVE BLVD W, MONTREAL 108 QUE

MACDONALD, WENDY C, MISS 453-6580
DEPARTMENT OF AGRONOMY, MACDONALD COLLEGE
279 EDGEWATER ROAD, PINCOURT ILE PERROT PQUE

MACDOUGALL, JAMES IAN, DR 392-5362
MD (UNIV OF TORONTO)
FRCPC
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
1650 CEDAR AVE
C/O DR C S MACDOUGALL, 12 SILVERWOOD AVENUE,
TORONTO 10 ONTARIO

MACFARLANE, DAVID L, PROF 453-6580
B S A (SASKATCHEWAN), M SC (SASK),
PH D (MINNESOTA)
PROFESSOR DEPARTMENT OF AGRIC ECONOMICS
AGRIC ECONOMICS, MACDONALD COLLEGE 800, QUEBEC
4490 SHERBROOKE ST W, MONTREAL 215 QUE 935-5630

MACFARLANE, PAULINE, MRS 453-6580
MANAGER MACDONALD COLLEGE BOOK STORE
BOOKSTORE, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE PQ
69 MONTEE STE MARIE, STE ANNE DE BELLEVUE QUE 453-5720

MACGREGOR, DOUGLAS B, MR 392-5080
DEPT OF GEOGRAPHY, BURNSIDE HALL
260 CHAMBLY ST APT 9, GREENFIELD PARK QUE 671-9786

MACINTOSH, DONALD J, DR

BA (ST F X), MD CM (MCG)
FRCP(C), FACP, FCCP(C)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED M G H, 1650 CEDAR AVE.
MONTREAL 109 QUE
1610 PINE AVE W, MONTREAL QUE

MACINTOSH, FRANK C, PROF 392-4347
LLD (ALTA), LLD (QU)
BA (DALHOUSIE), M A (DAL), PHD (MCGILL)
FRS, F R S C
DRAKE PROFESSOR PHYSIOLOGY
PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SC BLDG
145 WOLSELEY AVE N, MONTREAL WEST QUE 481-7939

MACINTOSH, NADIA, DR
CT MED (BERL), D MED (BERL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
ROYAL EDWARD CHEST HOSP, 3650 ST URBAIN ST,
MONTREAL QUE

MACKAY, D G, DR
MB CHB (EDIN)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
347 METCALFE AVE, MONTREAL 215 QUE

MACKENZIE, ANGUS F, PROF 453-6580
B S A (SASKATCHEWAN), M S C (SASK),
PHD (CORNELL)
PROFESSOR DEPARTMENT OF SOIL SCIENCE
SOIL SCIENCE, MACDONALD COLLEGE 800, QUEBEC
BOX 308, MACDONALD COLLEGE QUE 453-1488

MACKENZIE, BRIAN W, PROF 392-8025
B ENG (MCGILL), M S (WITWATERSRAND),
ENG SC D (COLUMBIA)
ASSOCIATE PROFESSOR DEPT OF MINING ENGINEERING
MIN ENG & APP GEOPHY, MCCONNELL ENG BLDG
R R 1, MELBOURNE QUEBEC 826-3309

MACKENZIE, FLORENCE I, MISS 392-5028
B A (MCGILL), M SC (MCGILL)
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
SCHOOL FOR GRAD NURSES, WILSON HALL
3777 COTE DES NEIGES RD, APT 518, MONTREAL QUE

MACKENZIE, KENNETH W, MR 392-8299
B A (DALHOUSIE), M SC (MCGILL)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
3549 RUE JEANNE MANCE, MONTREAL 130 QUE
842-4375

MACKENZIE, MALCOLM BLAIR, DR
B SC (MCG), MD CM (MCG)
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
206 COTE ST ANTOINE, WESTMOUNT 217 QUE 937-1920

MACKENZIE, ROBERT E, DR 392-5470
B SC (MCGILL), M N S (CORNELL), PH D (CORNELL)
ASSISTANT PROFESSOR DEPARTMENT OF BIOCHEMISTRY
MCINTYRE MEDICAL BLDG
200 ELGAR, APT 212, NUNS ISLAND 201 QUE

MACKEY, DONALD, PROF 392-4552
MUS B (TOR)
ASSOCIATE PROFESSOR FACULTY OF MUSIC
CHAIRMAN-DEPT OF SCHOOL MUSIC
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
3500 ATWATER AVE, MONTREAL 109 QUE 932-5004

MACKEY, MICHAEL C, PROF 392-3049
BA (UNIV OF KANSAS),
PH D (UNIV OF WASHINGTON)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED BLDG
4030 GREY AVE, MONTREAL 260 QUE 486-4714

MACKINNON, K J, DR 181-479
BSC (ST FRANCIS XAVIER), MDCM (DALHOUSIE)
PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
637 BELMONT, MONTREAL QUE 181-479

MACKLEM, PETER T, DR 181-1741
BA (QUEENS), MD (MCGILL)
FRCP(C), LMCC
PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLIN, RM 4621 4 MED, ROYAL VICTORIA HOSP
20150 LAKESHORE RD, BAIE D URFE QUE 453-5896

MACLACHLAN, GORDON A, PROF 392-4649
BA (SASKATCHEWAN), M A (SASK), PHD (MANITOBA)
PROFESSOR BIOLOGY
BIOLOGY, STEWART BLDG
29 STAYNOR ST, WESTMOUNT 215 QUE 932-4242

MACLAREN, LYNDA, MRS 392-4681
DIRECTORS OFFICE, LIBRARY ADMINISTRATION,
MCLENNAN LIBRARY
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BSC (ALBERTA), M D (ALTA), PHD (MINNESOTA)
FRCS (C)
PROFESSOR MCGILL-R V H SURGERY CLINIC
DIRECTOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
5 RENFREW, MONTREAL 6 QUE 486-5577

MACLEAN, WALLACE H, PROF 392-5732
BSC ENG (COLO SCH OF MINES), M SC (MCG),
PHD (MCGILL)
ASSISTANT PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
195 MACAULAY ST, ST LAMBERT QUE 672-3064

MACLELLAN, DELPHINE, MRS 392-5719
BSC (DALHOUSIE), MSC (MCGILL)
CURATOR MARINE SC CL MARINE SCIENCE CENTRE
MARINE SCIENCE CENTRE, 772 SHERBROOKE W
3453 PEEL ST, APT 17, MONTREAL QUE

MACLENNAN, HUGH, PROF 392-5004
CC
D LITT (WATERLOO LUTHERN)
BA (DALHOUSIE), B A (OXON), A M (PRINC)
PHD (PRINCETON)
PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
1535 SUMMERHILL AVE, MONTREAL QUE 932-8566

MACLEOD, ALASTAIR W, DR 844-3971
BSC (GLASGOW), MB CHB (GLAS), MB CHB (GLASGOW)
MRCP
PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, 3690 PEEL ST
3787 COTE DES NEIGES RD, APT 321 MONTREAL QUE

MACLEOD, JOHN PETER, PROF
BA (SASK U), MD (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOSP
715 GROSVENOR AVE, MONTREAL 217 QUE

MACLEOD, ROBERT ANGUS, PROF 453-6580
BA (BRITISH COLUMBIA), M A (U B C),
PH D (WISCONSIN)
PROFESSOR DEPT OF MICROBIOLOGY
MICROBIOLOGY, MACDONALD COLLEGE 800, QUEBEC
448 GREENWOOD DR, BEACONSFIELD QUE 697-4798

MACMORINE, EDITH MARY, MISS
MCLENNAN LIBRARY - CAT, MCLENNAN LIBRARY
3455 COTE DES NEIGES RD, APT 214,
MONTREAL 109 QUE

MACNAMARA, JOHN, PROF 392-4692
BA (UNIV COLL DUBLIN), MED (EDIN),
PHD (EDINBURGH)
ASSOCIATE PROFESSOR PSYCHOLOGY
RESIDENCE DIRECTOR DOUGLAS HALL
PSYCHOLOGY, STEWART BIOLOGICAL BLDG
3851 UNIVERSITY ST, DOUGLAS HALL,
MONTREAL 110 P QUE 392-4204

MACNEIL, JOHN, MR 392-5729
P S C LIBRARY, PHYS SCIENCES CENTRE

6555 20TH AVE, ROSEMOUNT QUE 727-8771

MACNEILL, ANNABEL DAISY, PROF 392-8806
BA (BRITISH COLUMBIA), BD (MCGILL),
MA (COLUMBIA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
5175 PRINCE OF WALES AVE, MONTREAL 265 QUE
488-3829

MACONOCHIE, ALEXANDER K, PROF 392-8816
MA(HONS)GE (EDINBURGH)
F R S G S
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
15 PERRAULT AVE, STE ANNE DE BELLEVUE QUE
45-6839

MACONOCHIE, HELEN L, PROF 453-6580
BA (TORONTO), MA (TORONTO)
ASSOCIATE PROFESSOR SCHOOL OF FOOD SCIENCE
SCH OF FOOD SCIENCE, MACDONALD COLLEGE 800, QUE
15 PERRAULT AVE, STE ANNE DE BELLEVUE QUE
453-6839

MACRAE, MAISIE, PROF 392-8841
BA (SIR GEORGE WILLIAMS), MA (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
37 HILLSIDE AVE, PTE CLAIRE QUE 695-3750

MACWILLIAM, MARGARET, MRS 453-6580
FOOD SCIENCE, MACDONALD COLLEGE 800, QUEBEC
186 SHERBROOKE ST, BEACONSFIELD QUE 695-2754

MADER, JANIS LYNN, MRS 392-5186
MCLENNAN LIBRARY - AQUIS, MCLENNAN LIBRARY
3355 IVAN FRANKO, APT 406, LACHINE QUE 634-2208

MADORE, PATRICK, DR
M D C M (DAL), M SC (MCG)
F R A C, F A C S
SURG ST MARYS HOSP, 3830 LACOMBE AVE,
MONTREAL 249 QUE
ST MARYS HOSP, 3830 LACOMBE AVE, MONTREAL QUE

MAGEE, EMILY M, MRS 453-6580
MICROBIOLOGY, MACDONALD COLLEGE 800
419 CURE DAVID RD, DORION QUE 234-4327

MAGILL, FRANK, DR 842-1251
B SC (MCGILL), M D C M (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL VICTORIA HOSP
190 DUFFERIN RD, MONTREAL 254 QUE

MAGNUSON, ROGER P, PROF 392-8873
BA (MICHIGAN), M A (MICH), PHD (MICHIGAN)
PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
100 DE GASPE, APT 904, NUNS ISLAND PQ 761-1747

MAGUIRE, GORDON JOHN, DR
B A (LOYOLA), M D C M (MCG)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
MONTREAL GENERAL HOSP
4533 COOLBROOK AVE, MONTREAL QUE

MAHEUX, COLETTE MARY-ANN, MISS 392-4284
OBSERVATORY, ROOM 102A, PHYSICS BUILDING
500 DE GASPE, APT 410 NUN S ISLAND,
MONTREAL QUE 769-6282

MAIER, KURT, PROF 392-4646
PH D (INNSBRUCK)
ASSISTANT PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
83 ST PATRICK CRES, PINCOURT QUE 365-7017

MAJOR, EFFIE, MRS 453-6580
MICROBIOLOGY, MACDONALD COLLEGE 800, QUEBEC
345 CURE DAVID RD, DORION QUE 234-4177

MAJUMDAR, TAPAS, MR 392-5406
B A (CALCUTTA), MA (CALCUTTA)
BLACKER-WOOD LIBRARY, REDPATH LIBRARY
3433 DUROCHER, APT 608, MONTREAL 130 QUE
849-1009

MALCOLM, JOHN M, MR 392-4421
MIDDLE MANAGEMENT 2 MCGILL-QUEENS UNIV PRESS
MCGILL QUEEN S UNIV PRES, 3458 REDPATH ST
292 GREEN CIRCLE, DORVAL QUE 631-3931

MALIK, M ANWER SAEED, DR 453-6580
BSC (PUNJAB), M S (MINNESOTA), PH D (MICHIGAN)
SESSIONAL LECTURER
DEPARTMENT OF AGRIC ENGINEERNG
MACDONALD COLLEGE 800 PQ
40 TAHIR KHAN ROAD, QUETTA PAKISTAN

MALLETTE, EUGENE, MR 392-5109
FACULTY OF ARTS, DAWSON HALL
34 DU CHALET AVENUE, VILLE ST PIERRE 645 QUE
484-7975

MALLOCH, ARCHIBALD E, PROF 392-4999
B A (QUEENS), M A (TOR), PH D (TORONTO)
PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
524 LANSDOWNE AVE, MONTREAL 217 QUEBEC 937-2485

MALLORY, JAMES R, PROF 392-5247
LLD (NEW BRUNSWICK)
BA (NEW BRUNSWICK), LL B (EDIN),
MA (DALHOUSIE)
F R S C
PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
632 GROSVENOR AVE, WESTMOUNT 217 QUE 486-1358

MALMO, HELEN PITTS, MRS
B A (SIR GEORGE WILLIAMS), M SC (MCGILL)
LECTURER DEPARTMENT OF PSYCHIATRY
A M I
814 GRAHAM BLVD, T M R QUE

MALMO, ROBERT B, PROF 181-1602
LLD (MANITOBA)
BA (U MONTREAL), MA (MONTREAL), PHD (YALE)
F A P A
PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, ALLEN MEMORIAL INST,
MONTREAL 112 QUE
814 GRAHAM BLVD, TOWN OF MT ROYAL QUE 733-5888

MALOWANY, ALFRED, PROF 392-5412
B ENG (MCGILL UNIV), PHD (MCGILL UNIV)
CEQ
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
4590 PRINCE OF WALES, MONTREAL 29 QUE 487-1229

MAMER, ORVAL A, PROF 181-206
BSC (HON) (U OF WINDSOR), PHD (WINDSOR)
U CLINIC, CLINICAL BIOCHEM DIV,
RM 37 4TH FL MAIN RVH
530 WESTMINSTER ST, DOLLARD DES ORMEAUX QUE
626-4052

MANDEL, BERNARD, MR
P C N (MONTREAL), M D (MONTREAL)
DEMONSTRATOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
HAVRE DES ILES, PH 3-C, LAVAL QUE

MANDL, GEORGE, PROF 392-4220
B SC (SIR GEORGE WILLIAMS), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY, AVIA MED RESCH, MCINTYRE MED SCI
4914 MAYFAIR ST, MONTREAL QUE 482-2073

MANFREDA, JURE, DR 392-4743
MD (LJUBLJANA), DPH (ZAGREB)
ASST PROF DEPT OF EPIDEM & HEALTH
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY
3440 DUROCHER, APT 804, MONTREAL QUE

MANGEL, ROMAN, DR
B SC (MCGILL), M D C M (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED-CL-MED MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
2177 GOYER ST, MONTREAL QUE

MANKIEWICZ, EDITH, DR
LIC (LYONS), MD (LYONS)
ASSISTANT PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOL & IMMUNOLOGY, PATHOLOGICAL INSTITUTE
760 WILDER AVE, MONTREAL 154 P Q 849-5201

MANLEY, GEOFFREY A, PROF 392-5401
B A (CANTAB), MA (PRINCETON),
DOCTORATE (PRINCETON NJ)
ASSISTANT PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIO BLDG
341 MORRISON AVE, TOWN OF MOUNT ROYAL 738-4163

MANNING, PATRICK, PROF 392-4721
B SC(CHEMISTRY) (CALIF),
M S(HIST) (U OF WISCONSIN),
M S(ECONOMICS) (U OF WISCONSIN),
PH D(HISTORY) (U OF WISCONSIN)
VISITING ASST PROF HISTORY
3582 UNIVERSITY ST APT 1, MONTREAL QUEBEC 845-9674

MANSON, ANDREA, MRS 392-8849
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MANTON, LOIS A C, MISS 392-4986
ENGLISH, ARTS BLDG
3404 PRUD HOMME, MONTREAL QUE 489-2969

MARCUS, DAVID M, DR
FRCP(C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
20 DEVON AVE, WESTMOUNT 217 QUE 487-3532

MARCUS, LOTTE, PROF 392-5996
CERT M HLT (LOND SCH ECONOMICS), M S W (MCGILL)
DIP ADVAN PRACT (MCGILL), DSW (COLUMBIA U)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
3555 ATWATER AVE, APT 6 MONTREAL QUE 931-4752

MARGOLESE, RICHARD G, MR
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
JEWISH GENERAL HOSPITAL, 3755 COTE ST CATHERINE
MONTREAL 249 QUE

MARGOLIS, BERNARD, PROF 392-8045
B SC (MCGILL), M SC (MCG), PH D (M I T)
PROFESSOR PHYSICS
THEORETICAL PHYS GRP, PHYSICAL SCI CENTRE
5634 PARKHAVEN AVE, MONTREAL 269 PQ 484-5210

MARIEN, BREEN, DR
BA (MCGILL), MDCM (MCGILL)
LECTURER DEPARTMENT OF SURGERY
SURGERY QUEEN ELIZ HOSP
QUEEN ELIZABETH, 2100 MARLOWE, MONTREAL 260 QUE

MARIN, INES, MISS 392-8805
BA (SAN MARCOS)
MUSIC LIBRARY, 555 SHERBROOKE ST W
1002 MCGREGOR AVE, APT 106, MONTREAL 112 QUE 843-3388

MARISI, DANIEL Q, DR 392-8891
B ED (SASKATCHEWAN), B A (SASK), M SC (SASK)
PH D (CAL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
PHYSICAL EDUC, ARTHUR CURRIE GYM
321 INGLEWOOD AVE, PTE CLAIRE QUE 695-8510

MARK, SHEW KUEY TOMMY, DR 392-4836
B SC (MCGILL), M SC (MCG), PH D (MCGILL)
ASSOCIATE PROFESSOR PHYSICS
FOSTER RADIATION LAB
4163 NORTHCLIFFE AVE, MONTREAL 260 QUE 487-3265

MARKELL, KEITH, MR 392-4827
DD (KNOX TORONTO)
B A (MCGILL), PHD (UNIVERSITY OF CHICAGO)
ASSOCIATE PROFESSOR FAC OF RELIGIOUS STUDIES
3520 UNIVERSITY ST
5145 COTE ST LUC RD, APT 36 MONTREAL 248 QUE

MARKS, MELVIN, DR 937-8511
BSC (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
4000 DE MAISONNEUVE W, WESTMOUNT 216 QUE

MARKS, PAUL F, MR 392-4526
BA (CALIF), M M (TULSA OKLAHOMA)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
330 MARLATT ST, ST LAURENT 378 QUE 392-4526

MARKUS, ARTHUR J, DR
B SC (MCG), MD CM (MCG)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
M C H
7200 HUTCHISON ST, SUITE 109, MONTREAL 270-4477

MARLEY, ANTHONY, PROF 392-4712
B SC (BIRMINGHAM), PHD (PENNSYLVANIA)
AMS, AAAS
ASSOCIATE PROFESSOR PSYCHOLOGY
STEWART BIO BLDG
519 DE GASPE APT 601, MONTREAL 201 PQ,
MONTREAL 101 QUE 482-9816

MAROSI, ERIKA, MRS
CATALOGUING, MCLENNAN LIB
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MAROTI, EDWARD, MR
SESS LECT FACULTY OF MANAGEMENT
1020 PINE AVENUE WEST
186 TRENTON AVENUE, TOWN OF MOUNT ROYAL P Q

MAROUN, THEODORE JOHN, PROF 392-8885
BS (S U POTSDAM N Y), M S (CANISIUS COLLEGE),
M ED (STATE UNIV OF N Y)
EDD (INDIANA UNIVERSITY)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
518 BEACONSFIELD BLVD, BEACONSFIELD QUE 695-4881

MARPOLE, DEREK G F, DR 842-1251
BA (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, ROYAL VICTORIA HOSPITAL
4473 HARVARD AVE, MONTREAL QUE 481-9955

MARQUIS, ALFRED, PROF 453-6580
B SC (LAVAL)
ASSISTANT PROFESSOR
DEPARTMENT OF AGRIC ENGINEERNG
MACDONALD COLLEGE 800 PQ
6 RIVERMEAD, STE ANNE DE BELLEVUE, QUEBEC 453-9668

MARSDEN, JOAN C, PROF 392-4658
BSC (MCGILL), M SC (MCG), PHD (U OF CALIFORNIA)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
41 BIRCH HILL RD, BAIE D URFE QUE

MARSHALL, GEORGE R, MR 392-3012
ANAESTHESIA RES DEPT, MCINTYRE BLDG RM 1201
2331 BELGRAVE AVE, MONTREAL 261 QUE 482-4909

MARSHALL, J STEWART, MR 392-5133
BA (QUEEN S), M A (QU), PH D (CAMBRIDGE)
F R S C
PROFESSOR PHYSICS
PROFESSOR METEOROLOGY
DIR OF OBSERVATORY & WEATHER RADAR
DIRECTOR PHYSICS
PHYSICS DEPT, MACDONALD PHYSICS BLDG
20095 LAKESHORE RD, BAIE D URFE QUE 453-4394

MARSHALL, KENNETH G, DR 181-1784
BA (MCGILL), MDCM (MCGILL)
F R C P (C)
ASSOCIATE PROFESSOR PATHOLOGY SERVICE
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY SERVICE, PATH INST
2993 CEDAR AVE, MONTREAL QUE 931-6043

MARSOLAIS, JEANNE, MISS
BA (MCGILL)
ASSIST DIRECTOR SUMMER SESSION-ADMINISTRATION
ROOM 317, ADMINISTRATION BLDG

1489 MORGAN BOULEVARD, APT 1, MONTREAL 403

MARTEL, M A RENEE, MISS 392-4776
MCCORD MUSEUM, 690 SHERBROOKE ST W
3805 DUPUIS APT 12A, MONTREAL 249 QUE

MARTIN, ANN E, MRS 392-4421
BA (MCGILL)
MCGILL QUEENS UNIV PRESS, 3458 REDPATH ST
5353 SHERBROOKE ST W, APT 1011, MONTREAL QUE

MARTIN, BRENDA E, MISS 392-6744
CTR FOR CONTINUING EDUC, 772 SHERBROOKE ST W
3534 UNIVERSITY ST, MONTREAL QUE 288-2736

MARTIN, FERNAND, PROF 392-5886
B A (MCGILL), M A (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK
1540 LA BROQUERIE S, ST BRUNO QUE

MARTIN, GRETCHEN S, MRS 392-4684
B A (U MASS)
PSYCHOLOGY DEPT, STEWART BIO BLDG
5240 MONTCLAIR AVE, MONTREAL 265 QUE 652-2319

MARTIN, JEAN CLAUDE, PROF 845-8125
B PHARM (U OF M), M HOSP ADMIN (U OF M)
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
3775 UNIVERSITY ST
5439 RUE BRODEUR, MONTREAL 260 QUE 489-8512

MARTIN, JOHN L, MR 392-4385
MANAGER TECH SERVICES
PHYSICAL PLANT, 840 MCGREGOR
4 PRINCE EDWARD AVENUE, POINTE CLAIRE QUE 697-4155

MARTIN, JOSEPH B, DR 937-6011
MD (ALBERTA), PHD (ROCHESTER)
F R C P C
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
NEUROLOGY M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
131 BROCK AVE S, MONTREAL WEST QUE 937-6011

MARTIN, JOYCE, MISS 392-4800
ACCOUNTING DEPT, ADMINISTRATION BLDG
4310 METROPOLITAIN STE, APT 25, ST LEONARD QUE

MARTIN, KATHARINE, MRS 453-6580
B H S (MCGILL)
SESSIONAL LECTURER SCHOOL OF FOOD SCIENCE
MACDONALD COLLEGE 800, QUEBEC
3 LAKEVIEW RD, BAIE D URFE QUE

MARTIN, M EVE, MRS 453-6580
AGR PHYSICS, MACDONALD COLLEGE 800, QUEBEC
26 MADSEN AVE, BEAUREPAIRE QUE 695-6547

MARTIN, RICHARD, DR 392-5881
M D (U DE MONTREAL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
RESPIRATORY DIV, UNIVERSITY CLINIC,
DEPT OF MED R V H
8191 CHATEAUNEUF, ANJOU, MONTREAL QUE

MARTIN, ROBERT F, PROF 392-5732
BSC(HON) (OTTAWA), M S (PENN STATE),
PHD (STANFORD)
ASSISTANT PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
10385 CUROTTE, MONTREAL 359 QUE 382-3683

MARTIN, SAUL A, DR
BA (MCGILL), MD (SASKATCHEWAN)
FRCPC
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
JEWISH GENERAL HOSPITAL
5845 COTE DES NEIGES, MONTREAL 249 QUE 739-8002

MARTIN, WILLIAM M, PROF 392-5129
B SC (QUEEN S), PHD (MCGILL)
PROFESSOR PHYSICS
ASSISTANT CHAIRMAN PHYSICS
PHYSICS DEPT, MACDONALD PHYSICS BLDG
295 BROOKHAVEN AVE, DORVAL QUE 631-3941

MARTINEZ, Z NELLY, PROF 392-4602
TCH DP (CORDOBA), MA (OHIO ST), PH D (OHIO ST)
ASSISTANT PROFESSOR SPANISH
SPANISH LANG & LIT, 3491 PEEL ST
1100 MCGREGOR ST, APT 901, MONTREAL 112 QUE

MARVIN, DAVID WALLAC, MR
MCCORD MUSEUM
3355 QUEEN MARY, APT 312, MONTREAL QUE

MASLOWE, SHERWIN A, DR 392-5384
B S (WAYNE ST), M S (U C L A), PH D (U C L A)
ASSISTANT PROFESSOR MATHEMATICS
BURNSIDE HALL
5690 BOUL PLAMONDON, VILLE BROSSARD QUE 672-8972

MASON, STANLEY G, PROF 392-4487
B ENG (MCGILL), PH D (MCGILL)
PROFESSOR CHEMISTRY
DEPT OF CHEMISTRY, PULP & PAPER BLDG
12 SPRINGFIELD AVE, WESTMOUNT QUE 931-5614

MASSAM, BRYAN H, PROF 392-4720
B SC (LONDON), M A (MCMASTER), PH D (MCMASTER)
ASSISTANT PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
5177 CLANRANALD AVE, MONTREAL 248 QUE 481-6186

MASSON, SHEILA, MRS 392-4292
BIOLOGY, STEWART BIO BLDG
550 BELLEVUE BLVD, GREENFIELD PARK QUE 676-0874

MASTROBERARDINO, O. M, MRS. 392-5263
ACCOUNTING DEPT, ADMINISTRATION BLDG
7506A MARQUETTE ST, MONTREAL 329 QUE 729-9262

MATHAI, A M, PROF 392-8282
B SC (KERALA), M SC (KERALA), MA (TOR)
PH D (TOR)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
6 THORNTON DRIVE, WESTWOOD VILLAGE,
DOLLARD DES ORMEAUX QUE 684-5504

MATHER, BRUCE, PROF 392-4526
MUS B (TOR), MA (STANFORD), MUS D (TORONTO)
ASSOCIATE PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
7445 GLENWOOD AVE, MONTREAL 301 QUE 731-5507

MATHESON, BALLEM H, PROF 181-1771
BSC (MACDONALD COLLEGE), M SC (DAL),
PHD (MCGILL UNIVERSITY)
PROFESSOR DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOLOGY ▮ IMMUNOLOG, PATHOLOGY BLDG
54 SUMMERHILL AVE, POINTE CLAIRE QUE 695-2679

MATHEWSON, GEORGE, PROF 392-4989
BA (HARVARD), B LITT (OXON), PHD (PRINCETON)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
2070 MAISONNEUVE BLVD W, APT 79 MONTREAL QUE 937-6521

MATHIESON, GORDON, DR 181-242
MBCHB (SCOTLAND), MSC (MCGILL)
F R C P (C)
ASSOCIATE PROFESSOR NEUROPATHOLOGY LABORATORY
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSOCIATE PROFESSOR PATHOLOGY SERVICE
NEUROPATHOLOGY LABORATOR, M N I
122 LOCKHART AVE, T M R, MONTREAL 304 QUE 738-8604

MATHISON, JAMES F, PROF 392-5137
B A (HON) (SASKATCHEWAN), PHD (MCGILL)
ASSOCIATE PROFESSOR PHYSICS
MACDONALD PHYSICS BLDG
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MATTHEWS, PAUL M, MR 392-5360
BA (OTTAWA), MSC (FORDHAM)
DIRECTOR PERSONNEL DEPARTMENT
PERSONNEL DEPT, F CYRIL JAMES BLDG
220 DUFFERIN RD, MONTREAL 254 QUE 482-6737

MATTINSON, EDWINA, MRS
DEPT OF CHEMICAL ENG, MCCONNELL ENGR BLDG
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FRENCH LANG & LIT, PETERSON HALL
1537 AVE SUMMERHILL, APT 204, MONTREAL 933-1712

MAUGHAN, GEORGE BURWELL, DR 181-396
MDCM (MCGILL), MSC (MCGILL)
M R C D G, F A C S
DEPARTMENT CHAIRMAN
DEPT OF OBSTETRICS & GYNAECOLY
PROFESSOR DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOLOGY,
ROYAL VICTORIA HOSPITAL,MONTREAL 112
619 SYDENHAM AVE, WESTMOUNT QUE 481-1341

MAURAIS, LISE, MISS 392-4226
RESIDENCY PROGRAMME, MCINTYRE MEDICAL BLDG
3460 PLACE DECELLES, MONTREAL 251 QUE

MAXWELL, PERCEVAL M, MR 392-5192
BA (SIR GEORGE WILLIAMS), M A (MCG),
DOCTORATE (MCGILL)
DEPARTMENT CHAIRMAN HISTORY
ASSOCIATE PROFESSOR HISTORY
HISTORY DEPT, STEPHEN LEACOCK BLDG
4858 KING EDWARD AVE, MONTREAL 265 QUE 488-0942

MAYEROVITCH, HARRY, MR 392-5409
B A (MCGILL), B ARCH (MCG)
SESSIONAL LECTURER SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
345 VICTORIA AVE, RM 601, MONTREAL 215 QUE

MAYHEW, RUBY, MISS 392-4643
BIOLOGY DEPT, STEWART BIOLOGY BLDG
3654 AYLMER ST, APT 7 MONTREAL QUE 844-3506

MAYNARD, GERDA, MRS 392-4870
BOOKSTORE, 3480 MCTAVISH ST
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MAYNOR, DIANNE, MRS 392-4714
MLS (MCGILL)
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MAYR, ALBERT, MR 392-4526
DIPLOMA (CONSERVTY FLORENCE)
LECTURER FACULTY OF MUSIC
555 SHERBROOKE ST WEST
4244 ST URBAIN ST, MONTREAL 131 PQ 844-8021

MCAROLE, ALICE HOPE, DR 937-6011
B SC (MCGILL), M SC (MCG), PH D (MCG)
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
SURG CLIN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
17 HOLTHAM ROAD, MONTREAL 254 QUE 486-4651

MCARTHUR, G ARNOLD, MR
SESSIONAL LECTURER FACULTY OF EDUCATION
3700 MCTAVISH ST
20 RAVINE RD, STE THERESE QUE

MCBAIN, SHARON, MISS
PERSONNEL, ADMINISTRATION BLDG, ROOM 414
1900 LINCOLN AVE, APT 45, MONTREAL 108 932-2304

MCCALLUM, J LESTER, DR
BA (MCGILL), DIP INT ME (MCGILL)
FRCP(C), FACP
PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
UNIV CLIN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3466 GREY AVE, MONTREAL QUE 937-3458

MCCALLUM, MARTHA, MISS 392-4965
ACQUISITIONS, MCLENNAN LIBRARY
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MCCALLUM, NORAH, MRS 392-5186
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MCCANDLISH, HARRY, MR 392-4663
BIOLOGY DEPT, STEWART BIOLOGY BLDG
5195 DALOU ST, MONTREAL 248 QUE 482-7830

MCCARDELL, NORA E, PROF
B A (SIR GEORGE WILLIAMS), M A (WATERLOO),
M SC (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
PSYCHOLOGY & SOCIOLOGY, 3700 MCTAVISH STREET
4361 ROSEDALE AVENUE, MONTREAL 262 QUE 486-6697

MCCARTHY, JOHN J, DR
BSC (ST FRANCIS XAVIER), DDS (MCGILL)
FRCD(C)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
STRATHCONA DENT BLDG
3550 COTE DES NEIGES RD, SUITE 790,
MONTREAL QUE

MCCARTHY, MICHAEL, MR
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MCCASKILL, OLIVIA P, MRS 392-4828
RELIGIOUS STUDIES, 3520 UNIVERSITY ST
4645 MELROSE AVE, MONTREAL 261 QUE 489-7485

MCCAUGHEY, THOMAS J, DR 937-6011
MB BCH (NATIONAL U IRELAND)
PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3714 DE BOULEVARD, WESTMOUNT QUE

MCCLOSKEY, BRIAN, PROF 392-5407
B A (MCGILL), M A (HARVARD)
, R A I C
ASSISTANT PROFESSOR SCHOOL OF ARCHITECTURE
MCCONNELL ENG BLDG
23 CHESTERFIELD AVENUE, WESTMOUNT 217 PQ 484-3881

MCCLURE, DAVID JOSEPH, DR 937-6011
MB (QUEENS UNIV), M SC (MCG),
FRCPI (ROY COL PHNS IREL)
M R C P I, M D P M
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, M G H, 1650 CEDAR AVE
1745 CEDAR AVE, APT 511, MONTREAL 109 QUE

MCCOLL, ALLAN, MR 392-8015
D F C
B COM (MCG)
C A
DIRECTOR OF FINANCE ADMINISTRATION
OFFICE DIR FINANCE, F CYRIL JAMES ADMIN BLDG
159 DUNRAE AVE, TOWN OF MOUNT ROYAL QUE 737-3256

MCCONNELL, WAYNE, MR 392-5872
BA (CARLETON), MLS (MCGILL)
CPLQ
LIBRARIAN REDPATH LIBRARY
REDPATH LIBRARY, 3459 MCTAVISH ST MTL
1641 DE MAISONNEUVE W, APT 6, MONTREAL 935-7859

MCCRAW, D BRUCE, DR 937-6011
MD (U WESTERN ONT)
FRCP (C), CSPQ
TEACHING FELLOW UNIVERSITY CLINIC M G H
UNIVERSITY CLINIC M G H
4850 COTE DES NEIGES, APT A-1802 MTL247 PQ

MCCRIMMON, DONALD R, DR
B A (MCGILL), MD CM (MCGILL)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
M C H, 2300 TUPPER ST
3001 KENT AVE, MONTREAL 251 QUE

MCCRORY, THOMAS P, DR 392-3017
BA (SIR GEORGE WILLIAMS), B SC (S G W U),
MS (GEORGETOWN UNIV), DDS (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY MTL GEN HOSP, 1650 CEDAR AVE,

MONTREAL 109 QUE
7 PARKMAN PLACE, WESTMOUNT 217 QUE

MCCUBBIN, GEORGE MARSHALL, MR 392-4964
B SC (S G W U)
HEAD OF AQUISITIONS MCLENNAN LIBRARY - AQUIS
ACQUISITIONS DEPT, MCLENNAN LIBRARY
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MCCULLAGH, PAUL F, PROF 392-5219
BA (TORONTO), PH D (CHICAGO)
PROFESSOR CLASSICS
CLASSICS, LEACOCK BLDG
3562 UNIVERSITY ST, MONTREAL QUE 845-9876

MCCULLOGH, KEITH, DR
MD (MANITOBA)
F R C S (C), C S P Q
LECTURER DEPARTMENT OF SURGERY
LAKESHORE GENERAL HOSP
430 EDGEWOOD RD, BEACONSFIELD QUE 695-1310

MCCUTCHEON, JOHN O, PROF 392-5964
B ENG (MCG), M ENG (MCG)
M A S C E, M E I C, M I A S B E, M F P R S
PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
4070 TRAFALGAR RD, MONTREAL QUE

MCDONALD, ALISON D, DR 392-4745
MBBS (LONDON), D C H (LOND), D P H (LOND)
M D (LONDON)
MRCS, LRCP
ASSOCIATE PROFESSOR DEPT OF EPIDEM & HEALTH
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
DEPT OF EPIDEM & HEALTH, NEW WING PATH INST
10 OAKLAND AVE, MONTREAL 6 QUE 481-3503

MCDONALD, ISABEL R, MISS 392-5863
PHYSICS CHRMNS OFFICE, MACDONALD PHYSICS BLDG
3455 AYLMER ST, APT 407, MONTREAL 130 QUE

MCDONALD, LOIS ELAINE, PROF 392-8850
B MUS (SAM HOUSTON STATE U), M A (COLUMBIA U)
QMEA
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN DEPT OF EDUCATION IN MUSIC
EDUCATION, 3700 MCTAVISH
1260 MCGREGOR APT 403, MONTREAL 109 PQ 845-0966

MCDONALD, THELMA, MRS
EDUCATION, 3700 MCTAVISH
8478 ST DENIS, MONTREAL 351 QUE 381-0569

MCDOUGALL, COLIN M, MR 392-5296
DSO
REGISTRAR REGISTRARS OFFICE
REGISTRAR S OFFICE, F CYRIL JAMES BLDG
433 LANSDOWNE AVE, WESTMOUNT QUE 937-3056

MCELROY, CONSTANCE, MISS 392-8816
FACULTY OF EDUCATION, SOCIAL SCI & MATH & SCI,
3700 MCTAVISH ST
76 CHESTER AVE, POINTE CLAIRE 700 QUE 697-8547

MCELROY, GORDON WM, PROF 392-6758
BA (QUEENS), MA (MCGILL)
DIRECTOR OF SUMMER SESSION FAC OF EDUCATION
ASSOCIATE PROFESSOR
SUMMER SESSION-ADMINISTRATION
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
ASSOCIATE PROFESSOR CONT ED-EDUCATION SECTION
SUMMER SESSION-ADMINISTR, 3700 MCTAVISH ST
69 SOMERSET CIRCLE, BAIE D URFE QUE 453-6432

MCELROY, KATHLEEN M, MISS 392-8830
FACULTY OF EDUCATION, 3700 MCTAVISH ST
629 ALEPIN ST, VILLE LASALLE 690 QUE 363-0545

MCFADDEN, LORNA W, MRS 392-3071
MCINTYRE ANIMAL CTR, MCINTYRE MED SCI CTR
470 BOURKE AVE, APT 2D DORVAL QUE

MCFARLANE, JOHN E, PROF 453-6580
BA (SASKATCHEWAN), M A (SASK), PH D (ILLINOIS)
PROFESSOR DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUEBEC

MCGARRY, ELEANOR, PROF 181-1715
BSC (MCGILL), MDCM (MCGILL)
F R C P(C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
M R C FELLOW UNIVERSITY CLINIC R V H
UNIV CLINIC RM 19-4 MAIN, R V H
3468 DRUMMOND ST, APT 501, MONTREAL 109 QUE

MCGILLIVRAY, RUSSELL, PROF 392-4495
B A (MCGILL), M A (MCG), PH D (YALE)
ASSOCIATE PROFESSOR FRENCH
PETERSON HALL
162 SOMMERHILL AVE, DOLLARD DES ORMEAUX QUE 684-9103

MCGILLY, FRANCIS J, PROF 392-5044
B A (ST F X), PH D (PITTSBURGH)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
4220 WEST HILL AVE, MONTREAL 261 QUE 486-8661

MCGOLDRICK, MICHAEL D, DR 181-1717
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
RENAL DIV 4MAIN R V H
4990 MONTCLAIR AVE, MONTREAL PQ

MCGREGOR, MAURICE, DR 392-4228
MB BCH (WITWATERSRAND), MD (WITWATERSRAND)
F R C P LOND, F R C P (C)
VICE PRINCIPAL UNIVERSITY CLINIC R V H
PROFESSOR FACULTY OF MEDICINE
UNIVERSITY CLINIC R V H, MCINTYRE BLDG
7430 BAYARD ST, MONTREAL 301 QUE 181-738

MCILHONE, JOAN H, MRS 392-4265
RESIDENCE, DOUGLAS HALL
1270 HERRON RD, APT 315, DORVAL QUE

MCILWAINE, EILEEN, SISTER 392-8811
BA (MARIANOPOLIS COLL), B ED (MARIANOPOLIS),
MA (UNIV MONTREAL), PHD (OTTAWA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
1230 MCGREGOR ST, APT 1103, MONTREAL QUE

MCINTYRE, JOHN M, DR
BSC (MCGILL), MDCM (MCGILL)
FRCS(C)
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY-MTL CHLD HOSP, 2300 TUPPER ST
2300 TUPPER ST, RM 532 MONTREAL QUE 937-8511

MCKAY, GERALD HOWARD, PROF 392-8803
BA (DALHOUSIE), M A (DAL), M A (YALE)
ED D (HARVARD)
PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
30 MUIR PARK CIRCLE, SENNEVILLE QUE 453-6317

MCKAY, JOHN K S, PROF 392-6731
B S C HONS (MANCHESTER), PHD (EDINBURGH)
ASSOCIATE PROFESSOR SCHOOL OF COMPUTING SCIENCE
SCH OF COMP SCI, BURNSIDE HALL

MCKEAN, NANCY, MISS 392-5275
FACULTY OF GRAD STUDIES, RESEARCH GRANTS OFFICE
DAWSON HALL
7425 CANORA RD, APT 502, MONTREAL 304 QUE 733-3437

MCKEE, GERALDINE, MISS 392-8214
REAL ESTATE OFFICE, 3575 UNIVERSITY ST
266 LANSDOWNE AVE APT 8, MONTREAL 215 PQ 932-2565

MCKENDRY, PATRICIA, MRS 392-4871
BOOKSTORE, 3480 MCTAVISH
324 PRINCE ALBERT ST, MONTREAL 215 QUE 482-0569

MCKENZIE, J MAXWELL, DR 181-729
MB CHB (ST ANDREWS), MD (ST ANDREWS)
M R C P
PROFESSOR UNIVERSITY CLINIC R V H
M R C FELLOW UNIVERSITY CLINIC R V H
UNIV CLINIC, THYROID SUB-DIV, R V H
1340 ST CLAIRE RD, TOWN OF MOUNT ROYAL QUE 739-5309

MCKEOWN, DIANE, MISS 392-5874
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
5635 VERDUN AVE, VERDUN QUE

MCKINNEY, MERCEDES P, MRS 392-4259
PHARM & THERAPEUTICS, MCINTYRE MED BLDG

4950 RANDALL AVE, MONTREAL 265 PQ 487-7709

MCKYES, EDWARD, DR 392-5883
B ENG (MCGILL), M ENG (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR DEPT OF CIVIL ENG
ASSISTANT PROFESSOR
DEPARTMENT OF AGRIC ENGINEERNG
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
441 CHURCH ST, BEACONSFIELD 870 QUE 697-8892

MCLAREN, MARION, MRS 392-4939
BA (MCGILL), BLS (MCGILL)
MCLENNAN LIBRARY - CIRC, 3459 MCTAVISH ST
2307 HINGSTON AVE, MONTREAL QUE 488-9651

MCLEAN, A PETER, DR 181-1726
BSC (MCGILL), MDCM (MCGILL)
F R C P C
ASSOCIATE PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
234 QUERBES, OUTREMONT 153 QUE

MCLELLAND, JOSEPH C, PROF 392-4833
BA (MCMASTER), M A (TOR), B D (KNOX COLL)
PH D (EDINBURGH)
PROFESSOR FAC OF RELIGIOUS STUDIES
RELIGIOUS STUDIES, 3520 UNIVERSITY ST
121 ALSTON ST, POINTE CLAIRE QUE 697-2909

MCLEOD, PETER J, DR
B A (SASKATCHEWAN), M D C M (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
312-40TH AVENUE, LACHINE QUEBEC

MCMAHON, PATRICIA, MISS 392-5331
VICE PRINCIPAL S OFFICE, ADMINISTRATION
47 MORHANGE AVENUE, LORRAINE PQ 622-9475

MCMICHEN, FRANCES, MISS
PERSONNEL OFFICER REDPATH LIBRARY
MCLENNAN LIBRARY
5370 PARK AVE, APT 17, MONTREAL QUE

MCMICHEN, GEORGE, MR 392-4964
BD (U OF ST ANDREWS), MA (U OF ST ANDREWS)
MCLENNAN LIBRARY - AQUIS, 3459 MCTAVISH ST
406 PINE AVE WEST, APT 15, MONTREAL QUE
849-7230

MCMURRAN, FIONA, MISS 392-5305
TRANSLATION SERVICE, F CYRIL JAMES BUILDING
2010 CHOMEDY ST WEST, APT 35, MONTREAL 108 QUE

MCNAB, ELIZABETH B, MISS 392-4766
B A (MCGILL)
FUND DIRECTOR GRADUATE SOC OF MCGILL
MARTLET HOUSE
4560 CORONATION AVE, MONTREAL 262 QUE 484-2246

MCNALLY, PETER F, MR 392-5930
BA HONS (UN OF WEST ONT), MLS (MCGILL)
CHA, CLA
ASSISTANT PROFESSOR
GRAD SCHOOL OF LIBRARY SCIENCE
REDPATH LIBRARY
3583 UNIVERSITY ST, APT 3 MONTREAL QUE 845-2886

MCNAUGHTON, FRANCIS L, DR 181-349
BA (MCGILL UNIVERSITY),
MDCM (MCGILL UNIVERSITY)
F R C P (C)
PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
618 VICTORIA AVE, MONTREAL QUE

MCNICOL, SHIRLEY, PROF 392-8822
BA (MCGILL), MA (COLUMBIA)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
200 GASPE RIVE, APT 506 NUN S ISLAND,
MONTREAL 201 QUE 761-5455

MCPHERSON, HUGO A, PROF 392-4878
C C M
BA (HONS) (MANITOBA), MA (WESTERN),
PHD (TORONTO)
PROFESSOR ENGLISH
ARTS BLDG
4300 DE MAISONNEUVE ST, APT 1201,
MONTREAL 215 QUE

MCVETY, ALAN JAMES, MR 392-5023
B SC (MCGILL)
MGR STUDENT INFO SYS MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
3578 UNIVERSITY ST, APT 2, MONTREAL QUE
843-8442

MEAKINS, JONATHON F, DR 181-752
B A (CANTAB), M A (CANTAB), MD CM (MCG)
FRCP(C), FACP
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
8 MED ROYAL VICTORIA HOS, 687 PINE AVE W,
MONTREAL QUE 933-1928

MEDLEY, DOROTHY, MISS 392-5065
LAW LIBRARY, CHANCELLOR DAY HALL
6014 2ND AVE, ROSEMOUNT QUE 721-4486

MEE, JUNITH G, MRS 392-4559
BA (TORONTO), DIPLOMA (TORONTO), MBA (HARVARD)
PROJECTS COORDINATOR
OFFICE OF UNIVERSITY PLANNING
, ROOM 531 ADMIN BLDG
4870 COTES DES NEIGES, APT 1506,
MONTREAL 247 QUE

MEEK, KENNETH, PROF 392-4550
BMUS (TORONTO)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
3460 SIMPSON ST, APT 106, MONTREAL 109 QUE

MEEK, MILDRED, MRS 392-4594
HUMAN GENETICS SECT, STEWART BIOL SC BLDG
3565 LORNE AVE, APT 407 849-3396

MEEROVITCH, EUGENE, PROF 453-6580
B SC (ST JOHNS SHANGHAI), M SC (MCG),
PH D (MCGILL)
PROFESSOR DEPT OF PARASITOLOGY
PARASITOLOGY, MACDONALD COLLEGE 800, QUE
5587 GLENCREST AVE, COTE ST LUC,
MONTREAL 266 QUE 482-9756

MEIGHEN, EDWARD A, DR 392-5470
B SC (UNIV OF ALTA), PH D (U OF CALIF),
POST DOC FEL (U OF CALIF)
ASSISTANT PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEM DEPT, MCINTYRE MED SCI BLDG
1791 TREPANIER ST, BROSSARD QUE 671-2265

MELAMED, S, PROF 392-5371
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSISTANT CHAIRMAN MATHEMATICS
ASSOCIATE PROFESSOR MATHEMATICS
TIMETABLE COORD OFFICE OF UNIVERSITY PLANNING
DEPT OF MATHEMATICS, BURNSIDE HALL
4868 MELROSE AVE, MONTREAL QUE 487-2949

MELANCON, DENIS, DR 181-1251
BA (U OF M), MD (U OF M)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
ASST RADIOLOGIST NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, M N I
1670 NORWAY AVE, TOWN OF MOUNT ROYAL QUE
342-4871

MELDRUM, DONALD A N, DR
BSC (MCGILL), MDCM (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MONTREAL GEN HOSPITAL, MONTREAL 109 PQ
123 PORTLAND PLACE, BEACONSFIELD 880 P QUE

MELNICK, MARILYN, MISS 392-5046
SCHOOL OF SOCIAL WK LIB, WILSON HALL
3633 AYLMER APT 6, MONTREAL 111 PQ

MELZACK, RONALD, PROF 392-4599
BSC (MCGILL UNIV), M SC (MCG),
PHD (MCGILL UNIV)
PROFESSOR DEPT
STEWART BIOLOGY BLDG
51 BANSTEAD RD, MONTREAL WEST 269 QUE 486-2445

MELZER, AVIV, PROF
B A (HEBREW UNIV), M A (HEBREW UNIV),
PH D (U OF WISCONSIN)

ASSOCIATE PROFESSOR JEWISH STUDIES PROGRAM
3511 PEEL ST
428 CASTLE PLACE MADISON, WISCONSIN 53703 U S A

MENDELSOHN, MELVIN, DR 181-1884
BSC (MCGILL), MD (MCGILL)
F R C S (C)
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
OTOLARYNGOLOGY DEPT, R V H
153 RADCLIFFE ROAD, MONTREAL WEST 264 QUE
488-0506

MENDELSON, JACK, DR
BSC (MCGILL), M S (UN OF ROCHESTER),
MDCM (MCGILL)
F R C P (C), Q C P S
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
JEWISH GENERAL HOSPITAL
5789 MELLING ST, MONTREAL QUE 342-3111

MENNIE, MARGARET E, MISS 453-6580
B A (MCGILL), B L S (MCGILL)
LIBRARIAN LIBRARY MACDONALD COLL
4 MAPLE AVE, APT 35, STE ANNE DE BELLEVUE QUE

MERCER, EDWARD N, DR 937-6011
B A SC (UBC)
FRCPC
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
3805 OLD ORCHARD AVE, MONTREAL 260 QUE 484-4515

MERCIER, PAUL, DR
BA (U OF MTL), DDS (U OF M)
VISITING LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND SUITE 316,
MONTREAL 107 QUE
1414 DRUMMOND ST, SUITE 316, MONTREAL 107 QUE

MERILEES, PHILIP ERROL, DR 392-4462
BSC (SIR GEORGE WILLIAMS), M SC (CARL),
PHD (MCGILL)
ASSOCIATE PROFESSOR METEOROLOGY
DEPT OF METEOROLOGY, BURNSIDE HALL
4365 GRINNELL, BOULDER COLORADO, 80303 USA

MERRETT, CECILIA M, MISS 392-4922
LIBRARIAN F.D. ADAMS LIBRARY
F D ADAMS LIBRARY, F D ADAMS BLDG
4656 SHERBROOKE ST W, APT 11, MONTREAL 215 QUE

MERRETT, TIMOTHY, PROF 392-8275
B SC (QUEENS), PH D (OXFORD)
ASSISTANT PROFESSOR SCHOOL OF COMPUTING SCIENCE
ASSISTANT PROFESSOR COMPUTING CENTRE
COMPUTER SCIENCE, BURNSIDE HALL
3620 LORNE CRESC, APT 617, MONTREAL 130 QUE
844-5663

MESTITZ, JUDITH ANNA, MISS 392-5020
MCLENNAN LIBRARY - AQUIS, MCLENNAN LIB
3404 PRUDHOMME AVE, APT 911, MONTREAL 260 QUE
484-9695

MESZAROS, ANTHONY F, DR
MD (BUD), BASIC SC CERT (MANIT)
QPA
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCH STE ANNE S HOSP
604 COTE ST ANTOINE RD, MONTREAL 217 P Q
489-9340

METCALFE, IAN, DR 937-6011
M B B S (WESTERN AUSTRALIA),
FFARACS (R AUST COL SURGEONS)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
510 FRANCOIS PARK, NUN S ISLAND,
MONTREAL 201 PQ 767-8650

METCALFE, ROBERT D, PROF 392-5217
B A (CARLETON U), B LITT (OXFORD)
ASSISTANT PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
3435 DRUMMOND ST, APT 10A, MONTREAL 109 QUE

METRAKOS, JULIUS D, PROF 392-4592
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
3757 MARLOWE AVE, MONTREAL 260 QUE 488-2147

METRAKOS, KATHERINE, DR
BA (SASKATCHEWAN), MDCM (MCGILL)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
NEUROLOGY & NEUROSURGERY,
MTL CHILDREN S HOSPITAL
3757 MARLOWE AVE, MONTREAL QUE

METTARLIN, DANIEL N M, MR
LECTURER FACULTY OF LAW
3644 PEEL STREET, MONTREAL 112
1010 STE CATHERINE ST W, SUITE 300,
MONTREAL QUE

MEYER, MONIQUE, MRS 392-4731
CTRE FOR LEARNING & DEV, MACDONALD CHEM BLDG
1000 LAWLOR ST, APT 806, MONTREAL 380 QUE

MEYER, PERRY, PROF 392-5125
B A (MCGILL), B C L (MCGILL)
PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
9 THURLOW RD, HAMPSTEAD, MONTREAL 254 QUE

MICALEFF, GABY, MISS 181-542
SURGERY, ROYAL VICTORIA HOSPITAL
218 BERLIOZ PARK, APT 306, NUNS ISLAND 761-3771

MIGNAULT, HELENE, MRS
BA (MCGILL), MA (MCGILL)
SESSIONAL LECTURER CTR FRENCH 2ND LANG
INSTRUCTOR CTR FRENCH 2ND LANG
CTR FRENCH 2ND LANG, PETERSON HALL
610 QUERBES ST, APT 9, MONTREAL 154 QUE

MILIC EMILI, JOSEPH, DR 392-4207
MD (UNIVERSITY OF MILAN)
PROFESSOR DEPARTMENT OF PHYSIOLOGY
PROFESSOR UNIVERSITY CLINIC R V H
DEPARTMENT CHAIRMAN DEPARTMENT OF PHYSIOLOGY
UNIVERSITY CLINIC MED, RESPIRATORY DIVISION,
4 MEDICINE R V H
4394 CIRCLE RD, MONTREAL QUE 738-3255

MILLAR, ERIC P, DR 935-6200
DDS (MCGILL)
F R C D (C)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
3550 COTE DES NEIGES
79 CORNWALL AVE, MONTREAL 304 QUE 935-6200

MILLER, ALEXANDER, DR
B SC (MCGILL), M D C M (MCGILL)
FRCP
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
3550 COTE DES NEIGES, SUITE 570,
MONTREAL 109 QUE

MILLER, ANNE, MRS 392-8088
OFFICE OF DIR OF FINANCE, ADMINISTRATION BLDG
218 BERLIOZ APT 406, NUNS' ISLAND,
MONTREAL 201 QUE 769-5066

MILLER, CARMAN IRWIN, PROF 392-4723
BA (ACADIA UNIVERSITY), B ED (ACADIA),
M A (DALHOUSIE), PHD (UNIV OF LONDON)
ASSISTANT PROFESSOR HISTORY
HISTORY DEPT, STEPHEN LEACOCK BLDG, ROOM 630
5550 BEAMINSTER PLACE, MONTREAL 252 PQ

MILLER, CAROLINE, MISS 392-4813
GRADUATE SOC OF MCGILL, 3605 MOUNTAIN STREET
3620 LORNE CRESCENT, APT 708, MONTREAL PQ

MILLER, JOAN, PROF 392-5182
B A (HON) (LINFIELD COLLEGE), M S (WIS)
ASSISTANT PROFESSOR ANTHROPOLOGY
STEPHEN LEACOCK BLDG
3454 STANLEY ST, APT D, MONTREAL QUE 845-6665

MILLER, JOSEPH E, DR 937-6011
B SC (ALBERTA), M SC (ALBERTA), M D (ALBERTA)
F R C S C
ASSOCIATE PROFESSOR MCGILL-M G H SURGERY CLINIC
MCGILL-M G H SURGERY CLI, MONTREAL GENERAL HOSP

1650 CEDAR AV MTL 109 PQ
641 ARGYLE AVE, WESTMOUNT QUE

MILLER, MAX J, DR
BSC (SASK), MSC (MCG), PHD (TULANE)
M D C M (QUEEN S)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
6 WOODRIDGE CRES, BEACONSFIELD QUE

MILLETTE, GERARD J F, PROF 453-6580
B SC AGR (MCGILL), PHD (PENN STATE)
ASSOCIATE PROFESSOR DEPARTMENT OF SOIL SCIENCE
SOIL SCIENCE, MACDONALD COLLEGE 800, QUEBEC
P O BOX 329, MACDONALD COLLEGE QUE 453-3760

MILLIGAN, CHARLES HENRY, MR 392-5269
ACCOUNTING DEPT, ADMINISTRATION BLDG
172 L ESPERANCE ST, ST LAMBERT QUE 672-3583

MILLWARD, STEWART, DR 392-4253
BSC (BRITISH COLUMBIA), MSC (U BR COL),
PHD (BRITISH COLUMBIA)
AAAS/AMS
MED RESEARCH SCHOLAR DEPARTMENT OF BIOCHEMISTRY
ASSISTANT PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY, MCINTYRE MED SCI BLDG
3772 MARLOWE AVE, MONTREAL 260 QUE

MILNE, IAN G, DR
BSC (MCGILL), MDCM (MCGILL)
LMCC
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
377 KENSINGTON AVE, MONTREAL QUE

MILNER, BRENDA, DR 181-1864
BA (CAMBRIDGE), PH D (MCGILL), SC D (CANTAB)
PROFESSOR NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, 3801 UNIVERSITY ST
3553 DUROCHER ST, APT 802 MONTREAL 130 QUE
288-1433

MILNER, PETER, PROF 392-4603
BSC (ENG) (LEEDS), M SC (MCG), PH D (MCGILL)
PROFESSOR PSYCHOLOGY
ROOM N8/5B, STEWART BIOL BLDG
512 CLARKE AVE, MONTREAL 217 QUE 937-5048

MINDE, KARL KLAUS, DR
MD (MUNICH), M A (COLUMBIA)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH MTL CHLD HOSP
2300 TUPPER ST, MONTREAL QUE

MINDEL, CARMELA, MRS 392-4567
DIP ITALIAN (PERUGIA), BA (MCGILL)
SESSIONAL LECTURER ITALIAN
ITALIAN LANG & LIT, PETERSON HALL
4970 GLENCAIRN AVE, MONTREAL 248 QUE

MINEAU, LOUISE, MRS 453-6580
AGRICULTURAL ECONOMICS, MACDONALD COLLEGE 800,
QUE
40A STE ANNE ST, STE ANNE DE BELLEVUE 800, QUE

MINORGAN, D BRUCE, MR 392-4526
B MUS (BRITISH COLUMBIA), M A (TORONTO)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST, W.
1375 GREENE AVE, APT 15, MONTREAL 215 QUE
931-7704

MIOT, MARIE JOSE, DR 842-1251
MD (MCGILL), FRCP(C) (CANADA)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, DERMATOLOGY 5 MED RVH
5552 KING EDWARD ST, MONTREAL QUE 488-4873

MIRZA, MUHAMMAD SAEED, PROF 392-5971
B ENG (KARACHI), M ENG (MCG), PH D (MCG)
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
DEAN OF STUDENTS
DEAN OF STUDENTS OFFICE, ADMIN BLDG
720 39TH AVE, LACHINE QUE 637-1741

MISHKIN, SEYMOUR, DR 181-720
FRCP (C) 1972
B SC (MCGILL), MD CM (MCGILL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
MED RESEARCH SCHOLAR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, 6 MEDICINE,
ROYAL VICTORIA HOSPITAL
5506 ELGIN AVE, MONTREAL QUE 489-4553

MISSALA, KRYSTYNA ELIZA, MRS
B SC (BRUSSELS), M SC (OTT)
RESEARCH ASSISTANT DEPARTMENT OF PSYCHIATRY
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, A M I
3221 FOREST HILL AVE, APT 38, MONTREAL QUE

MITCHELL, FLORENCE E, MRS 392-5102
FAC OF GRAD STUDIES, DAWSON HALL
99 BISHOP POWER BLVD, APT 309 LASALLE QUE
366-6993

MITCHELL, NELSON S, DR
BA (MCGILL), MDCM (MCGILL)
FRCS(C), RCS
ASSOCIATE PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY DEPT, ROYAL VICTORIA HOSP
232 COROT ST, NUNS ISLAND, MONTREAL QUE

MITCHELL, RICHARD W, DR 181-1729
B A (MCMASTER), DTM & H (LIVERPOOL),
MDCM (MCGILL)
LECTURER UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, 4 MEDICAL,
ROYAL VICTORIA HOSPITAL
3465 HUTCHISON ST APT704, MONTREAL 130, QUE
288-2796

MITCHELL, WILLIAM EDWIN, PROF 392-4843
B A (RICE), M A (YALE)
ASSISTANT PROFESSOR ART HISTORY
ARTS BLDG
4854 COTE DES NEIGES, APT 905, MONTREAL 247 QUE
731-0503

MIZGALA, H F, DR
BA (LOYOLA (U OF M)), MDCM (MCGILL)
FRCPC
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
LECTURER FACULTY OF DENTISTRY
FACULTY OF DENTISTRY, 2200 HANOVER ROAD,
MONTREAL 305
3258 THE BOULEVARD, MONTREAL 217 QUE 937-6011

MLADENOVIC, MILOS, DR 392-5184
DIP IN LAW (BELGRADE), DOC ENDROIT (PARIS)
PROFESSOR HISTORY
DEPARTMENT OF HISTORY, STEPHEN LEACOCK BLDG
537 WESTWOOD AVE, DORVAL QUE 631-0868

MLYNARYK, PETER, DR
BSC (MCGILL), MDCM (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL VICTORIA HOSPITAL
1390 SHERBROOKE ST W, STE 25 MONTREAL 109 QUE

MODAFFERI, DOMINIC, PROF 392-8821
BA (MONTREAL), MA (WESLEYAN)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
102 DONCK, LAVAL QUE 663-1582

MOHAMMED, SELIMA, MRS 392-5328
LIBRARIAN MCLENNAN LIBRARY - CAT
CATALOGUING MCLENNAN LIB
239 VILLENEUVE ST W, MONTREAL 152 QUE 276-3085

MOHYUDDIN, F, DR
LECTURER DEPT OF PEDIATRICS
M C H, 2300 TUPPER ST
226 DARWIN APT D, NUN S ISLAND, MONTREAL QUE

MOISAN, MURIELLE, MISS 453-6580
BRITTAIN HALL, MACDONALD COLLEGE 800, QUE
400 LAPORTE, DORION QUE 453-6580

MOLIK, MARK K, MR 392-5023
B MATH (WATERLOO)
SYSTEMS ANALYST MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
254 WESTMINSTER N, MONTREAL 263 QUE 489-4248

MONAGHAN, EDMOND D, DR 842-1251
BA (LOYOLA), LM CC (LAVAL), M SC (MCGILL)

MD (LAVAL)
FRCS(C), FACS
ASSOCIATE PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY DEPT, R V H
267 GLENGARY AVE, TOWN OF MOUNT ROYAL QUE
842-3080

MONAJEM, BARBARA, MRS 392-8023
MCLENNAN LIBRARY - CIRC
22A CHARLOTTE, LONGUEUIL PQ 670-1774

MONTES DE OCA, CHRISTINA, MISS
MENS RESIDENCES ADMINIST, MOLSON HALL
MOLSON HALL, 3905 UNIVERSITY, MONTREAL QUE

MOORE, JOHN R, DR
B A (MT ALL), MD CM (MCG), DIP SG (MCG)
FRCS(C), FACS
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, ROYAL VICTORIA HOSP
SUITE 443, 1 WESTMOUNT SQUARE, MONTREAL QUE

MOORE, ROBERT B, PROF 392-5365
B ENG PHYS (MCGILL), M SC (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR PHYSICS
RADIATION LAB
506 ABELARD PARK, NUN S ISLAND,
MONTREAL 201 QUE 761-5948

MOORE, TIMOTHY R, PROF 392-8223
B SC (SWANSEA), PH D (ABERDEEN)
ASSISTANT PROFESSOR GEOGRAPHY
BURNSIDE HALL
3601 ST FAMILLE, LA VILLA APTS APT 506,
MONTREAL QUE

MORALEJO, RICHARD VERNON, DR
MDCM (MCGILL)
F R C S (C), C S P Q, F A C S
LECTURER DEPARTMENT OF SURGERY
SURG ST MARYS HOSP, 3830 LACOMBE AVE,
MONTREAL 249 QUE
ST MARY S HOSPITAL, 3830 LACOMBE ST,
MONTREAL QUE

MORAN, LEO, DR
B SC (MCGILL), D D S (MCGILL)
LECTURER FACULTY OF DENTISTRY
1509 SHERBROOKE ST
1509 SHERBROOKE ST W, MONTREAL 109 PQ

MORE, ROBERT H, DR 181-594
M D (UNIV OF TORONTO)
FRSC(C)
DEPARTMENT CHAIRMAN DEPT OF PATHOLOGY(TEACH)
STRATHCONA PROF DEPT OF PATHOLOGY(TEACH)
DIRECTOR OF THE PATHOLOGICAL INSTITUTE
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST
1212 PINE AVE W APT 908, MONTREAL QUE 844-9038

MOREHOUSE, DOUGLAS D, DR 842-1251
B A (UNB), MD CM (MCG)
LMCC, FRCS (C), CSPQ
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, ROYAL VICTORIA HOSP
749 HOUSE BLVD, ST LAMBERT QUE 933-2624

MORGAN, GLORIA, MRS 392-5149
PHILOSOPHY DEPT, 772 SHERBROOKE ST.W.
3411 NORTHCLIFFE AVE, APT 93, MONTREAL 260 QUE

MORGAN, RICHARD, MR 392-4730
B ED PE (MCGILL)
PHYSICAL EDUCATION, 475 PINE AVE
11710 ST EVARISTE STREET, APT 507 MONTREAL 390
3

MORIARTY, SHEILA, MISS 392-5204
RESPIRATORY DIVISION, R V H
4595 GRAND BLVD, APT 7, MONTREAL QUE 486-4058

MORIN, CLAUDE L, DR
M SC (U OF TOR), M D (MONTR), M D (U OF MTL)
LECTURER UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, STE JUSTINE HOSPITAL
82 DEGUIRE BLVD, MONTREAL 380 QUE

MORIN, CLEMENT, DR
B A (MONTREAL), G S L (ROME), TH D (MONTREAL)
MUS D (MCGILL)
VISITING PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST W
2065 SHERBROOKE ST W, MONTREAL QUE

MORIN, MICHEL, MR
CATALOGUING, MCLENNAN LIBRARY
705 ROCHON ST, VILLE ST LAURENT QUE 747-0575

MORISON, DOROTHY, MRS 392-4921
DENTISTRY, STRATHCONA MED BLDG
4392 COOLBROOK AVE, MONTREAL 260 PQ 486-9622

MORISOT, JEAN-CLAUDE, PROF 392-4668
LL (SORBONNE), ENS (FRANCE), ADL (FRANCE)
DL (SORBONNE)
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG & LIT, PETERSON HALL
4874 COTE DES NEIGES RD, APT 103 MONTREAL 247 Q
737-5342

MOROZ, BRENDA, DR 842-1251
B A (TORONTO), M D (TORONTO)
FRCPC
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
DEPT OF PEDIATRICS, ROYAL VICTORIA HOSPITAL
4764 EDOUARD MONTPETIT, MONTREAL QUE 735-0971

MORRIS, JOAN, MRS
ACCOUNTS PAYABLE, ADMINISTRATION BLDG
2970 GOYER ST, APT A MONTREAL QUE

MORRIS, MARY E, DR 392-3006
M D (QUEENS), PHD (MCGILL)
DEPT OF ANAESTHESIA, ANAESTHESIA RESEARCH
3470 STANLEY ST, APT 402, MONTREAL QUE

MORRIS, THEODORE F, PROF 392-8043
B A (TORONTO), M A (TOR)
ASSOCIATE PROFESSOR PHYSICS
P S C
114 DOBIE AVE, TOWN OF MOUNT ROYAL QUE 737-2593

MORRISON, FRANK O, PROF 453-6580
BA (ALBERTA), B SC (ALTA), M SC (ALTA)
PHD (MCGILL)
ASSISTANT DIRECTOR DEPARTMENT OF ENTOMOLOGY
DEPARTMENT CHAIRMAN DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUEBEC
2 RIVERMEAD, MACDONALD COLLEGE,
ST ANNE DE BELLEVUE QUE 453-5837

MORRISON, HARRY D, PROF 392-8872
BA (BISHOP S), M ED (BISHOP S)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
COORDINATOR OF B ED PROGRAM
FACULTY OF EDUCATION, 3700 MCTAVISH ST
24 PERRAULT AVE, ST ANNE DE BELLEVUE 800,
QUEBEC 453-7214

MORRISON, ROBERT NEIL, PROF 392-5870
B ENG (MCGILL), B A (OXON), M A (OXFORD)
FAC. OF MANAGEMENT, BRONFMAN BLDG
341 BALLANTYNE AVE NORTH, MONTREAL WEST 263 QUE
488-9279

MORTON, ALLAN, DR
MDCM (MCGILL), M SC (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF NEUROANATOMY
NEURO & NEUROSURGERY, M N I
1260 MACGREGOR ST, APT 805 MONTREAL QUE
288-2849

MORTON, DOROTHY, PROF 392-4558
PREM PRIX (CONSERVTY OF QUEBEC)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
4840 VICTORIA AVE, MONTREAL QUE 487-3163

MOSCOVITCH, DAVID H, PROF 392-4326
B SC (S G W), M SC (MCGILL), PH D (MCGILL)
ASSISTANT PROFESSOR FACULTY OF MEDICINE
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
FACULTY OF MEDICINE, MCINTYRE BLDG
5296 MARIETTE AVE, MONTREAL 265 QUE 481-3461

MOSER, WILLIAM O J, PROF 392-8285
B SC (MANITOBA), M A (MINN), PH D (TORONTO)
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
44 ACADEMY RD APT 10, WESTMOUNT,

MONTREAL 215 QUE 933-9915

MOSS, BARBARA, MRS 392-8823
BSC (BRADLEY), MED (ILLINOIS)
LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
210 BADER WOOD, DOLLARD DES ORMEAUX QUE 626-7358

MOUNT, BALFOUR M M, DR
FRCP(C)
MD (QUEENS)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY-UROLOGY, 6 WEST R V H
600 VICTORIA AVE, WESTMOUNT 217 QUE 842-1995

MOUNTJOY, E W, PROF 392-5799
BASC (U BRITISH COLUMBIA), PHD (TORONTO)
ASSOCIATE PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
4395 ROSEDALE AVE, MONTREAL 262 QUE 488-8736

MOXLEY, JOHN E, PROF 453-6580
BSC (MCGILL), M SC (MCG), PHD (CORNELL)
ASSOCIATE PROFESSOR
DEPARTMENT OF ANIMAL SCIENCE
ANIMAL SCIENCES, MACDONALD COLLEGE 800, QUEBEC
97 CHURCHILL RD, BAIE D URFE QUE 453-5992

MOZER, MARY C, MISS 392-3056
MEDICAL LIBRARY, MCINTYRE MED SCI BLDG
3455 COTE DES NEIGES RD, MONTREAL 109 PQ

MUEHLING, OSCAR, MR 392-5460
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
133 44TH AVE, STE EUSTACHE QUE 473-7524

MUIR, WILSON B, PROF 392-4786
BSC (MCGILL), M SC (W ONT), PH D (OTTAWA)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, EATON LAB
43 BURTON AVE, WESTMOUNT, MONTREAL 215 QUE

MUKHERJEE, BARID B, PROF 392-4596
B SC (CALCUTTA), PHD (UTAH)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOL BLDG
5702 MERRIMAC ROAD, COTE ST LUC QUE

MULDER, DAVID S, DR 937-6011
M D (SASKATCHEWAN)
ASSISTANT PROFESSOR MCGILL-M G H SURGERY CLINIC
SURG MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
751 UPPER LANSDOWNE AVE, WESTMOUNT 217 QUEBEC 482-4620

MULLER, A KAROLA, DR
M D (KOLN UNIV)
LECTURER DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, A M I
118 ARLINGTON AVE, MONTREAL QUE 181-637

MULLER, FRITZ BATTLE, PROF 392-8037
MAT (ZURICH), PH.D. (ZURICH)
PROFESSOR OF GLACIOLOGY
BURNSIDE HALL
138 RUE DE NORMANDIE, PREVILLE EN HAUT QUE 671-1267

MULLER, HERBERT F, DR 766-8511
M D (COLOGNE)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP
118 ARLINGTON AVE, WESTMOUNT 217 766-8511

MULLER, JO ANN MARIE, MRS 392-4681
ADMINISTRATION DEPT, MCLENNAN LIBRARY
2121 ST MATTHEW ST, APT 1403, MONTREAL 935-9821

MULVEY, CHRISTOPHER, DR
BA (CAMBRIDGE), MSC (SHEFFIELD), MA (CAMBRIDGE)
D PHIL (SUSSEX)
LECTURER MATHEMATICS
PROF ASSOC MATHEMATICS
MATHEMATICS, BURNSIDE HALL
COPPERFIELDS BUTTSFIELD, LANE EAST HOATHLY,
SUSSEX ENGLAND

MUNRO-KERR, MARY E, MISS 453-6580
WOODLOT MANAGEMENT, MACDONALD COLL 800 QUE
55 MONTEE STE MARIE, APT 2,
STE ANNE DE BELLEVUE QUE 453-5917

MUNRO, DARRELL D, DR
B SC (UNIV NEW BRUNSWICK), M D C M (MCGILL)
FACS
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY, R V H
687 PINE AVE, MONTREAL QUE

MUNRO, DAVID J, DR
BA (MCGILL), DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
3550 COTE DES NEIGES, MONTREAL 109 QUE
304 PARKWOOD CIRCLE, DORVAL QUE 935-5126

MUROFF, FREDRICK I, DR
B SC (U DETROIT), D D S (DETROIT),
M SC D (BOSTON U)
F R C D C
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND ST, MONTREAL QUE
348 MORRISON AVE, TOWN OF MT ROYAL QUE

MURPHY, BRIAN G, MR 392-8241
B ENG (MCGILL)
RESPIRATORY DIVISION, R V H,
ROYAL VICTORIA HOSPITAL
23 LANSDOWNE GARDENS, POINTE CLAIRE QUE 697-6068

MURPHY, CHARLES L, PROF 392-4549
BSC (MANITOBA), D I C (LOND), PHD (MCGILL)
CEQ
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
10 SPRINGFIELD AVE, MONTREAL 217 QUE 932-3460

MURPHY, DAVID ALTON, PROF 937-8511
FRCSC
D V M (UNIV TORONTO), MD (MCGILL)
F R C S (C)
ASSOCIATE PROFESSOR MCGILL-M C H SURGERY CLINIC
SURGERY DEPT, MTL CHILDREN S HOSP,
2300 TUPPER ST
3642 LORNE CRESCENT, MONTREAL QUE 845-9778

MURPHY, DAVID RAYMOND, DR
MB (QUEENS BELFAST)
F R C P (C)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
15 LANSDOWNE RIDGE, WESTMOUNT QUE 344-3182

MURPHY, DAVID ROSS, DR
B SC (MCGILL), M SC (MCGILL), MD CM (MCGILL)
PROFESSOR MCGILL-M C H SURGERY CLINIC
SURG MTL CHLD HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
4998 DE MAISONNEUVE W, APT 601,
WESTMOUNT 215 QUE 487-6308

MURPHY, HENRY B M, DR 392-5164
MB CHB (EDINBURGH), DIP PUB HEALTH (LONDON),
M D (EDINBURGH), PHD (NEW SCHOOL N Y)
PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, BEATTY HALL
64 YORK ST, MONTREAL QUE 486-8469

MURPHY, SEAN B, DR 181-581
SB (HARVARD), MDCM (MCGILL)
ASSOCIATE PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHAMOLOGY, R V H, MONTREAL QUE
578 CLAREMONT AVE, MONTREAL 217 QUE 484-6230

MURRAY, BRYAN CLARENCE, MR 453-6580
DIP P E (MCGILL)
DIRECTOR MACDONALD COLLEGE ATHLETICS
ATHLETIC
BOX 215, MACDONALD COLLEGE QUE 453-7591

MURRAY, DAVID, DR 937-6011
BSC (GLASGOW), MB CHB (GLASGOW)
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY, 3775 UNIVERSITY ST
22 BEECHWOOD ROAD, BAIE D URFE QUE

MURRAY, HAROLD ROBERTS, PROF 453-6580

. M SC (CORNELL)
CAMPUS GRNDS MNGR CAMPUS MAINTENANCE
BLDGS & GRNDS, MACDONALD COLLEGE 800, QUE
183 ACRES ROAD, BEACONSFIELD QUE 695-9807

MURRAY, VIRGINIA E, MISS 392-5934
. M A (COL), B L S (MCG)
L T D GRAD SCHOOL OF LIBRARY SCIENCE
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4323 MAISONNEUVE BLVD W, MONTREAL 215 QUE
933-7070

MUSSELLS, H LINDSAY, DR
DDS (MCGILL)
FACULTY OF DENTISTRY, 4695 SHERBROOKE W
4695 SHERBROOKE ST WEST, MONTREAL QUE

MUSZKATEL, BRONISLAWA, MRS 392-5969
B A (MCGILL)
SESSIONAL LECTURER JEWISH STUDIES PROGRAM
JEWISH STUDIES PROGRAMME, 3511 PEEL ST
7501 BAILY RD, MONTREAL 267 QUE 489-2837

NADLER, NORMAN JACOB, DR 392-4888
BSC (MCGILL), M D C M (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG,
3640 UNIVERSITY
19 SUNNYSIDE AVE, WESTMOUNT, MONTREAL 217 QUE

NAGY, ALBERT, MR 392-3074
MCINTYRE ANIMAL CTR, MCINTYRE MED SCI CTR
780 MILLINGTON ST, GREENFIELD PARK QUE 672-4253

NAIMAN, JAMES, DR 489-6871
B A (MCGILL), M D (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, A M I
3495 MOUNTAIN ST APT 707, MONTREAL 109 QUE
935-9860

NAIMARK, ALLAN, DR
B S C (MCGILL), M D C M (MCGILL)
F R C P
LECTURER DIAGNOSTIC RADIOLOGY
DIAG RAD JWSH GEN HOSP
5762 BLOSSOM AVE, COTE ST LUC QUE 342-3111

NAIR, G, MR 392-8296
B SC (KERALA INDIA), M SC (MCGILL UNIV),
M SC (KERALA INDIA)
LECTURER MATHEMATICS
BURNSIDE HALL
3477 AYLMER ST APT 3, MONTREAL 130 QUE

NAKRA, HARBANS, MR 392-5388
B TECH (KHARGPUR), M TECH (KHARGPUR)
LECTURER DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
625 MILTON ST APT 1906, MONTREAL 130 PQ
849-8923

NALTCHAYAN, EDOUARD, MR
BACCAL (SAINT JOSEPH), DIP PSYCHI (MCGILL)
P C B
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP
4166 MARCIL AVE, MONTREAL 260 QUE

NANJI, RAZIA, MRS 392-4936
MCLENNAN LIBRARY - CIRC
3575 UNIVERSITY APT 416, MONTREAL PQ 844-9412

NASEER, SYED MOHD, MR 392-4628
BA (ALIGARH), BLS (MCGILL), MA (ALIGARH)
LIBRARIAN MCLENNAN LIBRARY -SELECTION
ACQUISITIONS, MCLENNAN LIB
151 JUBILEE STREET, GREENFIELD PARK PQ 482-8946

NATHENS, M S, DR
FRCP C
BSC PSYCHOL (MCGILL), MD (U OF SASKATCHEWAN)
DEMONSTRATOR SENIOR DIAGNOSTIC RADIOLOGY
R V H
6876 EMERSON ROAD, COTE ST LUC P QUE

NAYAR, BALDEV RAJ, PROF 392-5237
B A (PUNJAB UNIV), M A (CHICAGO),
PH D (UNIV OF CHICAGO)
PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
435 GROSVENOR AVE APT 5, WESTMOUNT QUE 932-6929

NAYLOR, JOAN MURIEL BROWN, MRS 392-4291
B A (MT ALL)
ADM ASSISTANT I MATHEMATICS
DEPT OF MATH, ROOM 1012, BURNSIDE HALL
APARTMENT 21, 2165 LINCOLN AVENUE,
MONTREAL 108 QUEBEC 933-6594

NEAL, JACK LAURENCE, DR 392-4327
BSC (MCGILL), M S (YALE), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
628 GROSVENOR AVE, MONTREAL 217 PQ 937-8511

NEAL, MARION, MRS
REDPATH LIBRARY, CIRCULATION RESERVES DEP
3475 DUROCHER APT 403, MONTREAL 130, QUE

NEALE, ANITA, MRS 392-5363
SR PERSONNEL INTERV, PERSONNEL DEPARTMENT
F CYRIL JAMES BLDG
391 BROOKHAVEN AVE, DORVAL 780 QUE 631-9796

NEGRETE, JUAN CARLOS, DR 937-6011
MD (TUCUMAN), DIPLOMA PG (MCGILL)
C R C P (C), CQCP
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3525 GREY AVE, MONTREAL QUE 487-5167

NEIL, GRAHAM IVAN, PROF 392-8890
B ED(PE) (MCGILL), MA (MCGILL), PHD (OREGON)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
CURRIE GYM
P O BOX 87, STANBRIDGE EAST QUE 248-3260

NEILSEN, GERALD H, MR
HONOURS BSC (QUEENS), M SC (QUEENS)
SESSIONAL LECTURER DEPARTMENT OF SOIL SCIENCE
MACDONALD COLLEGE 800 PQ
24 ST GEORGE ST APT 404, ST ANNE DE BELLEVUE PQ

NEIMS, ALLEN H, DR 392-5759
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
PHARMACOLOGY & THERAPS, MCINTYRE MED SCI BLDG
1842 ST CLARE RD, MOUNT ROYAL 305 QUE 739-1308

NEMIROFF, STANLEY, PROF 392-8875
B SC (MCGILL), M A (MCGILL)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH
428 LANSDOWNE AVE, WESTMOUNT 217 QUE 935-4744

NERAY, RUTH, MRS 392-4491
STAFF FRENCH COURSES, PETERSON HALL
445 GRATTON ST, VILLE ST LAURENT QUE 744-2492

NERMAN, YALE, DR
F R C P I
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE STE CATHERINE,
MONTREAL 249 QUE
3845 COTE DES NEIGES RD, SUITE 310 MONTREAL QUE

NETTEL, STEPHEN J, PROF 392-4724
B ENG (MCGILL), PH D (M I T)
VISITING PROFESSOR PHYSICS
DEPT, EATON ELECT RES LAB
4170 MARLOWE AVE, MONTREAL 260 PQ

NEUMANN, MARIANNE, MISS 392-5913
LIBRARIAN ENGINEERING LIBRARY
MACDONALD ENG BLDG
4489 COTE DES NEIGES RD, APT 1 MONTREAL QUE
738-5611

NEUMANN, PETER Z, MR
B SC (MED UNIV SZEGED), M D (MED UNIV SZEGED)
F A A P
DEMONSTRATOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER ST,
MONTREAL 108 QUE
12 BELCOURT ROAD, DOLLARD DES ORMEAUX, 684-1248

NEVILE, JEANNETTE, MRS 392-4598
PSYCHOLOGY, STEWART BIO SCI BLDG

4545 WALKLEY ST, APT 15, MONTREAL QUE

NEWMAN, BARRY GEORGE, PROF 392-4797
B A (CAMBRIDGE), MA (CANTAB), PH D (SYDNEY)
F R A E S, F C A S I, C ENG
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
49 NELSON ST, MONTREAL QUE 482-5708

NEWTON, JOYCE H, MISS 392-4820
B A (MCGILL)
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
4964 SHERBROOKE ST W, MONTREAL 215 QUE 486-6543

NEWTON, SUSAN, MRS 392-5254
OFFICE OF UNIV PLANNING, ADMINISTRATION BLDG
3875 FORT ROLLAND, APT 14, LACHINE 610 634-0521

NICHOL, DOROTHY A, PROF 392-8837
BSC (PE) (MCGILL), MSC (PE) (SYRACUSE)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FAC OF EDUCATION, CURRIE GYM
24 ST GEORGE APT 503, STE ANNE DE BELLEVUE 800, QUEBEC 453-9279

NICHOLLS, MARGO A., MISS
SERIALS, MCLENNAN LIBRARY
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NICHOLLS, ROBERT V V, PROF 392-4437
BSC HON CH (MCGILL), M SC (MCG),
PHD (CHEM) (MCGILL)
FCIC, FRSA
ASSOCIATE PROFESSOR CHEMISTRY
CHEMISTRY, OTTO MAASS BLDG
502 ELM AVE, MONTREAL 217 QUE 933-8263

NICHOLSON, FRANK HENRY, DR
B SC(HONS) (BRISTOL UK), PHD (BRISTOL)
ASSISTANT PROFESSOR GEOGRAPHY
GEOGRAPHY, MCGILL SUB-ARCTIC LAB,
PO BOX 790 SCHEFFERVILLE
MCGILL SUB ARCTIC RES LA, P O BOX 790,
SCHEFFERVILLE QUE

NICHOLSON, JOHN GREER, PROF 392-4616
BA (CAMBRIDGE ENGLAND), M A (CANTAB),
PHD (MONTREAL)
PROFESSOR RUSSIAN
DEPARTMENT CHAIRMAN RUSSIAN
RUSSIAN, 3684 MCTAVISH ST
4200 WILSON AVE, MONTREAL 260 QUE 489-1295

NICKERSON, G H, DR
BA (ACADIA), MDCM (MCGILL)
FA A P, FRCP(C)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
350 KENASTON AVE, TOWN OF MT ROYAL QUE

NICKERSON, MARK, PROF 392-4262
A B (LINFIELD COLLEGE), SC M (BROWN),
MD (UNIV OF UTAH), PH D (JOHNS HOPKINS)
DEPARTMENT CHAIRMAN
PHARMACOLOGY AND THERAPEUTICS
PROFESSOR PHARMACOLOGY AND THERAPEUTICS
PHARMACOLOGY DEPT, MCINTYRE MED SCI CTR
1 REDPATH ROW, MONTREAL 109 QUE 932-8274

NIKOLIN, OLGA, MISS 392-3092
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NIKORIAK, ANITA LOUISE, MISS 392-4870
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52-51ST AVE, LACHINE, QUEBEC

NILOFF, PAUL H, DR
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURG REDDY MEM HOSP, 4039 TUPPER ST,
MONTREAL 215 QUE
195 WEXFORD CRESC, MONTREAL 254 QUE 731-9961

NOEL, CHARLES E, MR 392-5354
B COMM (MCGILL)
C A
DIRECTOR OF BUSINESS OPERATIONS
UNIV ADMINISTRATION, F CYRIL JAMES BLDG
5185 SIR GEORGE SIMPSON, LACHINE QUE 637-0733

NOGRADY, M BERNADETTE, DR 937-8511
MEDICAL (UNIV PECS HUNGARY),
MD (UNIV PECS HUNGARY)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
LECTURER DEPT OF PEDIATRICS
DIAGNOSTIC RADIOLOGY, MONT CHILDREN S HOSP
4662 VICTORIA AVE, MONTREAL 247 QUE 489-8965

NOLET, JACQUES, MR
MA IN EDUC (MIAMI), MHA (OTTAWA)
EXEC ASSISTANT UNIVERSITY CLINIC M G H
UNIVERSITY CLINIC M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
244 AVE DES LANDES, ST LAMBERT QUE

NORMAN, LESTER C, MR 392-5793
ALTERATIONS CO-ORDINATOR
PHYSICAL PLANT, 840 MCGREGOR
10 BALLANTYNE AVE SOUTH, MONTREAL WEST 263 QUE, 489-8372

NORRIS, ERIC, PROF 453-6580
BSA (TORONTO), MSC (GUELPH)
ENG
ASSISTANT PROFESSOR
DEPARTMENT OF AGRIC ENGINEERNG
AGRICULTURAL ENGINEERING, MACDONALD COLLEGE 800 QUEBEC
BOX 205, MACDONALD CAMPUS,
STE ANNE DE BELLEVUE QUE 453-3568

NORTON, DAVID FATE, PROF 392-5154
AB (BETHEL), MA (CLAREMONT),
PHD (U CAL SAN DIEGO)
ASSOCIATE PROFESSOR PHILOSOPHY
772 SHERBROOKE ST.W.
1500 STANLEY ST, APT 809, MONTREAL QUE

NOSAKI, HIROSHI, DR
M D (KEIO), PH D (KEIO)
ANAESTHESIA RES DEPT, MCINTYRE MED BLDG
1230 MCGREGOR AVE, APT 409, MONTREAL 109 QUE

NOTAR, ATHENA, MRS 392-5082
DEANS SECRETARIAT, DAWSON HALL
2030 NORWAY RD, TOWN OF MT ROYAL QUE 739-8414

NOUMOFF, SAMUEL J, PROF 392-5238
B A (CLARK), M A (NYU), PH D (NYU)
STEPHEN LEACOCK BLDG
669 LAC ST LOUIS RD, DE LERY QUE 692-6341

NOVELLA, CARMEN, DR 937-6011
QPA
LECTURER DEPARTMENT OF PSYCHIATRY
MONTREAL GENERAL HOSP
225 OLIVIER AVE, 1538 SHERBROOKE 503 PQ 931-7755

NOVICK, WILLIAM HENRY, DR 181-650
D F C
MDCM (QUEENS UNIVERSITY)
FRCS(C), C C SQ
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
OTOLARYNGOLOGY, R V H
2445 NANTEL ST, ST LAURENT QUE 744-5124

NOWACZYNSKI, WOJCIECH JERZY, DR 842-1481
B SC (CYPRIAN NORVID), B SC (POLISH LYCEUM),
D SC (FRIBOURG)
PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
492 ELM AVENUE, WESTMOUNT 217 QUEBEC 937-4435

NYESTE, ZOLTAN B, DR
B SC (MCGILL), DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA DENT BLDG
307 PORTLAND AVE, MONTREAL 305 QUE 288-8338

O HARA, JOHN M, PROF 392-8844
BA (U MONTREAL), B ED (MARIANOPOLIS),
MA (MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN DEPT OF EDUCATION IN ENGLISH
FACULTY OF EDUCATION, 3700 MCTAVISH ST
406 PINE AVE W, APT 64, MONTREAL 130 QUE 842-5768

O LAIGHIN, PADRAIG B, MR 392-8803
SESSIONAL LECTURER FACULTY OF EDUCATION

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B TECH (II T DELHI),
M SC (LOUGHBOROUGH UNIV OF TE)
DEPT OF CHEMICAL ENG, ROOM 110,
MCCONNELL ENGR BLDG
3484 DUROCHER APT 505, MONTREAL QUE

OECHEL, WALTER C, PROF 392-5906
BA (CAL STATE COLL SAN DIEGO),
PHD (UNIV OF CALIF RIVER)
ASSISTANT PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
110 SUNNYSIDE, POINTE CLAIRE QUE

OELTZSCHNER, MARGOT, MRS 392-8081
ARTIST DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG
6630 SHERBROOKE WEST, APT 1014, MONTREAL QUE

OGILVIE, JOHN R, PROF 453-6580
B SC (MCGILL), PH D (PURDUE)
ASSOCIATE PROFESSOR
DEPARTMENT OF AGRIC ENGINEERNG
DEPARTMENT CHAIRMAN
DEPARTMENT OF AGRIC ENGINEERNG
AGRICULTURAL ENGINEERING, MACDONALD COLLEGE 800 QUEBEC
8 STEWART PARK, STE ANNE DE BELLEVUE 800, QUE 453-8306

OGILVIE, RICHARD IAN, DR 937-6011
MD (TORONTO)
F R C P (C)
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
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203 34TH AVE, LACHINE QUE 634-6255

OHLIN, PETER H, PROF 392-4998
FM (STOCKHOLM), M A (NEW MEX), PH D (NEW MEX)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
103 VANGUARD, POINTE CLAIRE 710 QUE 488-4400

OKUBO, TANJIRO, PROF 392-8283
M A (KYOTO), PH D (TOKYO)
ASSOCIATE PROFESSOR MATHEMATICS
BURNSIDE HALL, ROOM 1207
4805 DE MAISONNEUVE ST W, WESTMOUNT 215 QUE 933-2465

OLEJAR, MARIA, MISS 392-4342
PHYSIOLOGY DEPT, MCINTYRE MED SCI CTR
1708 MARIE CLAIRE, VILLE LASALLE QUE 365-2283

OLIVER, HOWARD T, DR 392-4923
DDS (MCGILL)
VISITING LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND ST, MONTREAL 107 QUE
1414 DRUMMOND ST, MONTREAL QUE 875-7449

OLIVER, JOHN A, DR 842-1582
B A (MCGILL), M A (MCG), MD CM (MCGILL)
FRCS(C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, ROYAL VICTORIA HOSPITAL
14 WOODRIDGE CRESCENT, BEACONSFIELD 870 QUE 842-1582

OLIVIER, ANDRE, DR 288-0996
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, MONTREAL NEURO INST,
3801 UNIVERSITY
6614 1ST AVE, ROSEMOUNT, MONTREAL QUE

OLSON, WILLIAM H, PROF 392-5384
B A (DUKE), PH D (VA POLYTECHNIC INST)
VISITING ASST PROF MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
CHATEAU BELMONT, 3605 ST URBAIN ST, APT 1402 MONTREAL QUE

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ONYSZCHUK, MARIO, PROF 392-4441
BSC (MCGILL), M SC (W ONT), PH D (MCG)
PHD (CAMBRIDGE)
PROFESSOR CHEMISTRY
OTTO MAASS BLDG
60 BALFOUR AVE, MONTREAL 304 QUE 342-5955

OOI, BOON-TECK, PROF 392-5410
B E (UNIV OF ADELAIDE), S M (M I T),
PH D (MCGILL)
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
3465 HUTCHISON ST, APT 803, MONTREAL 130 QUEBEC 843-7143

ORAM, FRANCES, MISS 392-4760
DEPT OF EPIDEM & HEALTH, NEW WING,
PATHOLOGICAL INST
389 CLAREMONT AVE, APT 4, MONTREAL 215

OREILLY, JAMES A, MR
LECTURER FACULTY OF LAW
3644 PEEL STREET, MONTREAL 112 PQ
249 LOCKHART, TOWN OF MOUNT ROYAL QUE

ORENSTEIN, EUGENE, PROF 392-5884
B A (CITY COLLEGE OF N Y),
M A (COLUMBIA UNIVERSITY)
ASSISTANT PROFESSOR JEWISH STUDIES PROGRAM
3511 PEEL ST
3601 STE FAMILLE, APT 1512, MONTREAL QUE 844-7654

ORR, MAYANN, MRS 392-8833
FACULTY OF EDUCATION, 3700 MCTAVISH STREET
2156 SHERBROOKE STREET W, APT 7, MTL 109 QUE

ORTIZ, ARACELI, DR
BACH SCI (PUERTO RICO), DMD (PUERTO RICO),
MSD (INDIANAPOLIS)
F A A O P, D A B O P
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTISTRY M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
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OSLER, BRIAN RICHARD, MR 392-8273
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M E I C, M A S C E, P ENG
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
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OTTON, PAUL E, DR 842-1251
MD (WESTERN ONTARIO)

F R C P (C)
ASSOCIATE PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, ROYAL VICTORIA HOSPITAL
72 STRATHCONA DR, MONTREAL QUE

OUIMETTE, VICTOR, PROF 392-4620
BA (MCGILL), PHD (YALE)
ASSISTANT PROFESSOR SPANISH
SPANISH LANG & LIT, 3491 PEEL ST
3660 PEEL ST, APT 11 MONTREAL QUE 845-1928

OUTERBRIDGE, EUGENE W, DR 937-8511
B SC (MCGILL), M D C M (MCGILL)
C S P Q
SCHOOL FOR GRAD NURSES, MONTREAL GENERAL HOSP
146 BALLANTYNE AVE, MONTREAL 263 QUE

OUTERBRIDGE, JOHN S, DR 181-1508
B SC (MOUNT ALLISON), B A (MT ALLISON),
PHD (MCGILL), M D C M (MCGILL)
ASST PROF OTOLARYN FACULTY OF MEDICINE
ASST PROF BIOMEDICAL ENGR
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
DIR OTOLARYNGOLOGY RSCH LAB
DEPARTMENT OF PHYSIOLOGY, MCINTYRE
62 DOBIE AVE, MONTREAL 304 QUE 739-4113

OWEN, HERBERT, DR
BA (MCGILL), MDCM (MCGILL)
FRCS(C), C S P Q, L M C C
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
MONTREAL CHILDRENS HOSP, 2300 TUPPER ST
43 BROCK AVE N, MONTREAL WEST QUE

OWEN, RICHARD EDWARD, MR 392-5023
MANAGER DATA CENTRE MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
8917 LASALLE BLVD APT 21, LASALLE QUE

OXORN, HARRY, DR
BA (MCGILL), MD CM (DALHOUSIE)
F R C S (C), FACS
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS &GYN REDDY MEM HOSP, 4039 TUPPER ST,
MONTREAL 215 QUE
4 BELVEDERE ROAD, WESTMOUNT, MONTREAL 217 QUE
933-9547

PAI, V SADANAND, DR 392-4269
B SC (MADRAS), B PHARM (BANARAS HINDU),
M PHARM (BANARAS HINDU)
PH D (WASHINGTON STATE)
LECTURER PHARMACOLOGY AND THERAPEUTICS
PHARM & THER, MCINTYRE MED BLDG
216 LAWRENCE, APT 216, GREENFIELD PARK 672-7763

PAIDOUSSIS, MICHAEL P, PROF 392-5477
B ENG (MCGILL), PH D (CAMBRIDGE)
A M I MECH E, M E I C
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
241 BROOKFIELD, TOWN OF MOUNT ROYAL,
MONTREAL 304 QUE 731-0625

PAIEMENT, JACQUELINE M, DR 392-5450
B MUS (MONTR), B A (MONTR)
LECTURER DEPARTMENT OF PSYCHIATRY
HEALTH SERVICE-MCGILL, 517 PINE AVE W
217 RIVE DARWIN, ILE DES SOEURS,
MONTREAL 201 QUE 761-5181

PAIGE, CHRISTOPHER CONWAY, DR 392-5898
B SC (SYDNEY), B ENG (SYDNEY), PH D (LONDON)
ASSISTANT PROFESSOR SCHOOL OF COMPUTING SCIENCE
COMP SC BURNSIDE HALL, MCGILL UNIV,
MONTREAL QUE

PAKALNINS, A, PROF 392-5929
CIVIL ENGR (LATVIA), DIPL (CHARLOTTENBURG),
D ENG SC (LATVIA)
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
380 BEAUMONT ST, ST BRUNO QUE

PALAMETA, MLADEN, MR 392-5421
SUPERVISOR OF ACCOUNTS PAYABLE
ADMINISTRATION BLDG
2720 BEDFORD RD, APT 7, MONTREAL 251 QUE

PALAMETA, ROSARIO, MRS 392-4682
JOB ANALYST PERSONNEL DEPARTMENT
ADMINISTRATION BLDG
2720 BEDFORD RD, APT 7, MONTREAL 251 QUE

PALAYEW, MAX J, DR
B A (MCGILL), M D (MONTPELLIER FRANCE)
F R C P (C), C Q C P S, C R C P (C)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
DIAG RAD JWSH GEN HOSP, 3775 COTE STE CATHERINE
MONTREAL 249 QUE
5758 BLOSSOM AVE, MONTREAL 268 QUE 342-3111

PALKOVI, YOLANDE, MRS
UROLOGY, MONTREAL GENERAL HOSP
115 DU CROCHET, LAVAL QUE 669-8515

PALMER, CHARLES, PROF 392-4526
MUS B (MCG)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
3738 ST ANDRE, MONTREAL 132 QUE 523-2639

PALMER, JOHN D, DR
BA (U N B), MDCM (MCGILL)
FRCS(C)
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
295 VIVIAN ST, TOWN OF MOUNT ROYAL QUE

PALMER, WILFRED, DR 181-1744
BSC (MCGILL), MD CM (MCGILL)
FRCP(C), F A C P
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
UNIV CLINIC, CARDIO DIV R V H
337 ROSLYN AVE, WESTMOUNT QUE 933-5208

PANAGIOTAKOPOULOS, DEMETRIOS, PR 392-5928
BCE (CITY COLL OF N Y),
PH D (CORNELL UNIVERSITY)
ASSISTANT PROFESSOR DEPT OF CIVIL ENG
MCDONALD ENG BLDG
3505 ST FAMILLE APT 807, MONTREAL 130 QUEBEC
849-5167

PAPICH, DRAGUTIN F, DR 392-5445
B SC (MCG), MD CM (MCG)
HEALTH SERVICE-MCGILL, 517 PINE AVE W
1538 SHERBROOKE ST W, SUITE 1015, MONTREAL QUE

PAPKE, CLIFFORD J, PROF 392-8858
DIP FINE ARTS (AOCA), BA (THOMAS MORE INST)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FAC OF EDUCATION, 3700 MCTAVISH ST
287 EVELYNE ST, FABREVILLE, VILLE DE LAVAL QUE
622-7429

PAPPIUS, HANNA, PROF 181-409
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
NEURO & NEUROSURGERY, M N I
4682 GROSVENOR AVE, MONTREAL 6 QUE 488-6379

PAQUETTE, MONIQUE, MISS 392-5314
PAYROLL DEPT, ADMINISTRATION BLDG
2517 RAUDOT ST, APT 2 VILLE EMARD QUE 769-8166

PAQUIN, BRENDA, MRS 392-5283
ACCOUNTING DEPT, ADMINISTRATION BLDG
5744 PLAMONDON BLVD, VILLE BROSSARD QUE

PARADIS, MADELEINE, MISS 392-4884
ANATOMY & HISTOLOGY, MEDICAL BLDG
32 GOUIN BLVD WEST, MONTREAL 12 QUE 334-4457

PARADIS, RITHA, MISS 392-4892
ANATOMY DEPT, STRATHCONA MED BLDG
3494 JEANNE MANCE, MONTREAL QUE 845-0398

PARE, JULES A PETER, DR 181-1727
BSC (MCGILL), MDCM (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
195 STREAM AVE, DORVAL QUE 631-4196

PARENT, LINDA JEAN, MISS 181-243
PSYCHIATRY DEPT, A M I
102 6TH AVE, VILLE ST PIERRE QUE 484-8309

PARIKH, PAT, MR
SESSIONAL LECTURER FACULTY OF MANAGEMENT
1020 PINE AVENUE WEST
P O BOX 2063, DORVAL STATION, DORVAL 780 QUE
PARIS, CATHRINE, MISS 392-4725
ATHLETICS, CURRIE GYM
4958 TRENHOLME AVE, MTL QUE 486-2161
PARIS, JOEL, DR 392-5452
M D (MCGILL)
INSTRUCTOR DEPARTMENT OF PSYCHIATRY
DEMONSTRATOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY,
STUD MENTAL HLTH CLINIC,517 PINE AVE WEST
4826 LACOMBE, MONTREAL 248 QUE 341-6211
PARK, JAMES, PROF
B ED (ALBERTA), PH D (ALBERTA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH ST
269 VILLAGE DRIVE, DOLLARD DES ORMEAUX QUE
PARNIS, ELIZABETH M, MRS 453-6580
B SC (LIVERPOOL)
GRADUATE ASSISTANT
DEPARTMENT OF PLANT PATHOLOGY
DEPT OF PLANT PATHOLOGY,
MACDONALD COLLEGE 800 PQ
12773 CLEARVIEW, PIERREFONDS P QUE 684-9291
PARRY, JOHN T, PROF 392-5496
BA (OXFORD), M SC (LIV), M A (OXON)
PHD (MCGILL)
ASSOCIATE PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
111 RUE DE PICARDIE, ST LAMBERT QUE 672-1056
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ENGLISH, ARTS BLDG
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PARSONS, RANDOLPH M, DR 932-4552
BSC (MCGILL), MDCM (MCGILL)
F R C S (C), F A C O G
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBS &GYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, MONTREAL QUE 486-0346
PARTRIDGE, CAROL, MRS 392-5078
B A (LEEDS)
DAWSON HALL, ROOM 211
55 COTE STE CATHERINE, APT 804,
OUTREMONT 153 QUE 277-8065
PASCAL-CLERC, GABRIELLE, DR
ASSISTANT PROF FRENCH
FRENCH, PETERSON HALL
1100 MCGREGOR, APT 520, MONTREAL QUE
PASCAL, CHARLES E, PROF 392-5291
BA (UNIV MICHIGAN), M A (MICH), PHD (MICHIGAN)
ASSISTANT PROF CENTRE FOR LEARNING & DEVELOP
STEWART BIOLOGY BLDG
4599 HARVARD AVE, MONTREAL 260 QUE 484-8896
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B A (MCGILL)
MUSIC LIBRARY, STRATHCONA MUSIC BUILD
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PASZTOR, VALERIE, PROF 392-4665
BSC (BIRMINGHAM), PHD (MCMASTER)
DIRECTOR OF CORE CURRICULUM
BIOLOGY DEPT, STEWART BIOLOGY BLDG
550 LANSDOWNE AVE, WESTMOUNT QUE 937-6953
PATEL, POPAT-LAL M, PROF 392-8044
B SC (MANCHESTER), M SC (MANCHESTER),
PH D (HARVARD)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, FOSTER RADIATION LAB
123 VANGUARD AVE, APT 1 PTE CLAIRE QUE 697-8897
PATERSON, MARGERY, MISS 392-5293
B A (MCGILL)
SR ASSISTANT REG, REGISTRARS OFFICE
ADMINISTRATION BLDG
4311 MONTROSE AVENUE, MONTREAL QUE 933-6985
PATRICK, GAIL K, MISS 181-1781
AAM PQ
PATHOLOGY, 3775 UNIVERSITY ST, MONTREAL 112 PQ
3463 STE FAMILLE ST, APT 1107, MONTREAL 130 QUE
845-0392
PATRICK, JOHN E, DR 937-6011
M D (WESTERN ONTARIO)
RESIDENCY PROGRAMME, 1650 CEDAR AVE,
MONTREAL 109 QUE
248 ELGAR APT 112, NUN S ISLAND,
MONTREAL 201 QUE 761-2637
PATRICK, WENDY, MISS 392-4339
B A (MCGILL), M L S (MCGILL)
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BSC (BISHOPS), B MUS (MCG), M MUSIC (TORONTO)
A R C C O
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
4291 AV DE L ESPLANADE, MONTREAL 131 QUE
845-1829
PATRIQUIN, HEIDI BRIGITTE, DR 937-8511
BSC (BISHOPS), MDCM (MCGILL)
MSPR
LECTURER DIAGNOSTIC RADIOLOGY
DIAG-RAD MTL CHLD HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
4291 ESPLANADE AVE, MONTREAL QUE
PATTEE, CHAUNCEY JOHNSON, DR
BA (BISHOPS), MDCM (MCGILL)
FACP
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLIN MED, ROYAL VICTORIA HOSPITAL
1390 SHERBROOKE ST W, MONTREAL QUE
PATTEN, ROBERT L, DR
MDCM (MCGILL)
F R C P(C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
5615 MENNEREUIL, MONTREAL 451 QUE 937-6011
PATTERSON, DONALD D, PROF 392-4453
BSC (MCGILL), MSC (MCGILL)
PROFESSOR CHEMISTRY
OTTO MAASS BLDG
551 ARGYLE AVE, MONTREAL 217 PQ 931-3180
PAUL, NICHOLAS JOHN, MR 392-5225
BA (CAMBRIDGE), M B A (MCGILL)
LECTURER COMPUTING CENTRE
BURNSIDE HALL
3634 LORNE CRES, APT 3, MONTREAL 130 QUE
PAVILANIS, IRENE, PROF 392-4680
BAC (VIENNA), MA (UNIV DE MONTREAL)
ASSISTANT PROFESSOR RUSSIAN
3487 PEEL STREET
4742 THE BOULEVARD, WESTMOUNT,
MONTREAL 217 QUEBEC 481-8437
PAVLASEK, TOMAS J, PROF 392-5879
B ENG (MCGILL), M ENG (MCG), PHD (MCGILL)
MAIEE, MIRE, P ENG
ASSOC DEAN PLANNING & DEVELOPMENT ENGIN FAC
PROFESSOR DEPT OF ELECTRICAL ENG
ASSOCIATE DEAN FACULTY OF ENGINEERING
FACULTY OF ENGINEERING, MACDONALD ENGR. BLDG
720 50TH AVE, LACHINE 610 QUE 637-7187
PAWLISKO, CHRISTINE, MISS 392-5862
ENGINEERING, MACDONALD ENG BLDG
155 QUERBES AVE, MONTREAL 153 QUE 271-8380
PEACEY, JOHN G, DR 392-5706
B SC (LEEDS), PH D (LEEDS)

PROFESSIONAL ASSOC DEPT OF METALLURGICAL ENG
DEPT OF METALLURGICAL EN, FDA BLDG
3915 UNIVERSITY ST, MONTREAL QUE

PEARMAN, ROBERT, DR
B A (MCGILL), M D C M (MCGILL),
DIPL EDUC (MCGILL), CERT OPHTHAL (MCGILL)
LECTURER DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
5025 SHERBROOKE ST W, SUITE 250,
MONTREAL 260 QUE

PEASTON, MONROE, PROF 849-3004
BA (OXFORD), M A (OXON), B D (LOND)
THD (UNION THEOL SEM)
ASSOCIATE PROFESSOR FAC OF RELIGIOUS STUDIES
RELIGIOUS STUDIES, 3520 UNIVERSITY ST
239 KENSINGTON AVE, APT 903, MONTREAL 215 QUE
933-4635

PEATMAN, ROSALIND A, MISS 392-5359
PERSONNEL DEPT, RM 418, ADMINISTRATION BLDG
3400 RIDGEWOOD, APT 5, MONTREAL QUE 738-3302

PEDERSEN, EIGIL, DR 392-5330
BA (SIR GEORGE WILLIAMS), M A (MCG),
ED D (HARVARD)
CA PE, QAPE
VICE-PRINCIPAL-ACADEMIC F CYRIL JAMES BLDG
ADMINISTRATION, F CYRIL JAMES BUILDING
235 ELGAR RIVE, NUN'S ISLAND VERDUN PQ 766-2166

PEDERSEN, MADGE, MRS
SESSIONAL LECTURER FACULTY OF EDUCATION
3700 MCTAVISH ST
235 ELGAR DRIVE, MONTREAL 201 P QUE

PEDVIS, SYDNEY, DR
B SC (MCG), MD CM (MCG)
ASSOCIATE PROFESSOR RESIDENCY PROGRAMME
1650 CEDAR AVE, MONTREAL 109 QUE
5300 COTE DES NEIGES RD, STE 420 MONTREAL QUE

PEETS, STEPHEN JOSEPH, MR 392-5819
CIRCULATION STACKS, MCLENNAN LIBRARY
4230 BEACONSFIELD AVE, MONTREAL 261 QUEBEC
484-7878

PELLETIER, REAL LUCIEN, PROF 453-6580
BSC (MONTREAL), M SC (MCG),
DOCTORATE (WISCONSIN)
PROFESSOR DEPARTMENT OF PLANT PATHOLOGY
PLANT PATHOLOGY, MACDONALD COLLEGE 800, QUE
POULTRY COTTAGE, MACDONALD COLLEGE,
STE ANNE DE BELLEVUE QUE 453-9710

PELNAR, PREMYSL V, DR 392-8057
MD (CHARLES PRAGUE), CSC (CHARLES PRAGUE)
ASSOCIATE PROFESSOR DEPT OF EPIDEM & HEALTH
PATHOLOGICAL INSTITUTE
5059 VICTORIA AVE, MONTREAL 247 QUE

PERCIBALLI, INGRID, MRS 392-3062
BA (MARIANOPOLIS), M LS (MCGILL)
LIBRARIAN MEDICAL LIBRARY
MCINTYRE MED BLDG
7595 BOUDARD ST, ST LEONARD QUE 254-5631

PERCIVAL, ANN E, MRS
REF AND INTERLIB LOANS, MCLENNAN LIBRARY
2112 CLAREMONT AVE, APT 38, MONTREAL 260 QUE
484-2720

PERCY, EDWARD C, DR
B SC (MCGILL), M D C M (MCGILL)
FRCS(C), CSPQ, FACS
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
ORTHOPAEDIC SURG MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, MONTREAL QUE 932-0683

PERLIN, ARTHUR SAUL, PROF 392-4507
B SC (MCGILL), M SC (MCG), PH D (MCGILL)
PROFESSOR INDUSTRIAL & CELLULOSE CHEM
CHEMISTRY DEPT, PULP & PAPER BLDG
6922 TERREBONNE AVE, MONTREAL QUE 488-5357

PERRY, TRACY B, MR 392-4573
B A (MIDDLEBURY)
RESEARCH ASSISTANT BIOLOGY
BIOLOGY, STEWART BIOLOGY BLDG
2100 BELLEVUE, ST BRUNO PQ 653-4531

PERRY, WAYNE A, MR 453-6580
AGRONOMY, MACDONALD COLLEGE 800, QUEBEC
C/O DEPT OF AGRONOMY, MACDONALD COLLEGE QUE
453-3814

PETERFY, GEORGE, DR 181-742
MD (EOTVOS LORAND), MD (EOTVOS LORAND)
CSPQ
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, ALLEN MEMORIAL

PETERS, BARBARA L., MRS 453-6580
B A (ONTARIO)
PLANT PATHOLOGY, MACDONALD COLLEGE 800, QUEBEC
128 NIGHTINGALE, BEACONSFIELD QUE 695-1086

PETERS, GORDON, MR 392-5318
BUDGET OFFICER BUDGET OFFICE
ADMINISTRATION BLDG
570 MILTON ST APT 24, MONTREAL QUE 843-8678

PETERS, JOAN E, MRS 392-5870
ADMIN ASSISTANT I MANANEMENT INSTITUTE
MANAGEMENT INSTITUTE, 1001 SHERBROOKE ST W
561 GROSVENOR AVE, MONTREAL 6 QUE

PETERSON, JEAN F, MR 453-6580
BA (GRINNELL), MSC (NEBRASKA),
PHD (U OF NEBRASKA)
ASSISTANT PROFESSOR
DEPARTMENT OF PLANT PATHOLOGY
MACDONALD COLLEGE 800 PQ
DEPT PLANT PATHOLOGY, MACDONALD COLLEGE, QUE

PETERSON, YVONNE, MRS 392-4663
BIOLOGY DEPT, STEWART BIOLOGY BLDG
7433 LASALLE BLVD, VERDUN 204 QUE 767-1374

PETROS, C I, MR 392-8298
B SC (KERALA U), M SC (KERALA U),
M SC (MCMASTER)
LECTURER MATHEMATICS
MATH DEPT, BURNSIDE HALL
3575 UNIVERSITY AVE, APT 106, MONTREAL 843-3890

PFEIFFER, J DAVID, MR 392-5469
BEE (CORNELL UNIV)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGR, THOMAS WORKMAN BLDG
COTE ST CHARLES RD, BOX 470, HUDSON HEIGHTS QUE

PHARO, JUDY, MISS 392-5880
FACULTY OF ENGINEERING, MACDONALD ENGR, BLDG
406 PINE AVE W, APT 16, MONTREAL 130 QUE

PICONE, MICHELANGELO, PROF 392-4590
LICENCE CLASSIQUE (FLORENCE),
DOCT EN LETTRES (FLORENCE)
ASSISTANT PROFESSOR ITALIAN
PETERSON HALL
1212 PINE AVE, APT 202, MONTREAL QUE

PIEHLER, PAUL H T, PROF 392-4993
BA (OXFORD UK), M A (OXON),
PH D (COLUMBIA NYC)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
73 STAFFORD RD, BAIE D URFE QUE 453-3060

PIERCE, CHARLES H, DR 392-5762
B A (LAWRENCE), MSC (MINN), PH D (ARIZONA)
LECTURER PHARMACOLOGY AND THERAPEUTICS
POST DOCTOR FELLOW
PHARMACOLOGY AND THERAPEUTICS
PHARMACOLOGY AND THERAPE, MCINTYRE MED SCI BLDG
100 FRANCOIS, APT 110, MONTREAL 201 QUEBEC
761-1089

PIHL, ROBERT O, PROF 392-4702
BA (LAWRENCE), M A (ARIZ ST),
PHD (ARIZONA STATE)
ASSOCIATE PROFESSOR PSYCHOLOGY
PSYCHOLOGY DEPT, STEWART BIOL SC BLDG
1400 PINE W APT 1103, MONTREAL PQ 282-3315

PINARD, MAURICE, PROF 392-5177

B A (MONTREAL), LL L (MONTR), M A (MONTR)
PH D (JOHNS HOPKINS UNIV)
PROFESSOR SOCIOLOGY
STEPHEN LEACOCK BLDG
3510 MOUNTAIN ST, APT 11 MONTREAL QUE 842-7535

PINKHAM, JUDITH M, MISS
BN (MCGILL)
LECTURER SCHOOL FOR GRAD NURSES
WILSON HALL
3435 PRUDHOMME AVE, APT 19, MONTREAL QUE
482-2698

PINTER, EMERY J, DR
M D (HUNGARY)
LMCC
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, REDDY MEMORIAL HOSPITAL
69 DUFFERIN RD, HAMPSTEAD QUE

PINTO, FRANCIS XAVIER, PROF **883-6705**
B A (MADRAS), L L B (BOMBAY), L PH (GREGORIAN)
M A (BOMBAY)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
262 FOREST ST, CHATEAUGUAY QUE 692-4880

PIPE, ANDREA H, MISS **392-4969**
CONT ED-BUSINESS ▮ MANAG, 772 SHERBROOKE ST, ROOM 103
3450 DRUMMOND ST, APT 307, MONTREAL 109 QUE
288-3691

PIROZYNSKI, WITOLD J, DR
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
4804 COTE DES NEIGES RD, APT 31,
MONTREAL 247 QUE

PITZELE, SYLVAIN, DR **392-3078**
BSC (BRUSSELS UNIV), M D (BRUSSELS),
M D (BAYLOR), DOCTORATE (MCGILL)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
MCGILL-R V H SURGERY CLI, MCINTYRE MEDICAL BLDG
4501 SHERBROOKE ST W, APT 3B, MONTREAL 215 QUE

PIVNICKI, DIMITRIJE, DR
DIP LAW (BELGRADE)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, A M I
3567 MARLOWE ST, MONTREAL 260 QUE 486-4039

PLACE, RONALD E G, DR **842-1251**
B A (MCGILL), MD CM (MCG), DP MED (MCG)
F R C P (C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL VICTORIA HOSPITAL
595 VICTORIA AVE, WESTMOUNT QUE

PLAWUTSKY, EUGENE, MR **392-4558**
B MUS (MCGILL), MA (TORONTO)
LECTURER FACULTY OF MUSIC
STRATHCONA MUSIC BLDG, 555 SHERBROOKE ST WEST
222 ST CHARLES BLVD, BEACONSFIELD QUEBEC
695-6023

PLETNEV, ROSTISLAV, DR
VISITING PROFESSOR RUSSIAN
1001 SHERBROOKE ST W
3201 FOREST HILL AVE, APT 2, MONTREAL QUE

POIRIER, CECILE, MRS **453-6580**
COMPUTING CENTRE, MACDONALD COLLEGE 800, QUE
72 LIPPEE ST, COTEAU STATION QUE

POIRIER, LOUIS J, DR **656-2066**
B A (U OF MONTREAL), M D (U OF MONTREAL),
PH D (U OF MICHIGAN)
CPSPQ
PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY
1310 DOLAN, QUEBEC 10 QUEBEC

POIRIER, MARJORIE G, MRS **453-6580**
MACDONALD COLLEGE ADMIN, MACDONALD COLLEGE 800,
QUEBEC
25 LAMARCHE ST, STE ANNE DE BELLEVUE QUE
453-2551

POLLAK, BERNARD, DR
MD (PRAGUE)
FACCP
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
C/O ROYAL EDWARD CHEST, HOSP 3650 ST URBAIN
849-5201

POLLAK, CATHERINE, MRS **392-8030**
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY ST
3764 VENDOME AVE, MONTREAL 260 QUE

POLLARD, ALWYNNE, MRS **392-8876**
B ED (U B C)
LECTURER FACULTY OF EDUCATION
EDUCATIONAL MEDIA CENTRE, 3700 MCTAVISH ST
3460 SIMPSON AVE, APT 203, MONTREAL 109 PQ
931-6658

POLLARD, ROBERT N, PROF **392-8876**
BA (U B C), M A (U B C)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
DIRECTOR-EDUCATIONAL MEDIA CENTRE
3700 MCTAVISH ST
3460 SIMPSON AVE APT 203, MONTREAL 109 PQ
931-6658

POLOSA, CANIO, DR **392-3089**
MD (ROMA), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF PHYSIOLOGY
ACTING CHAIRMAN DEPARTMENT OF PHYSIOLOGY
DEPARTMENT OF PHYSIOLOGY, MCINTYRE MED SC BLDG
149 CORNWALL AVE, MONTREAL QUE 731-9555

POLSON, JOSEPH STEWART, DR
BA (MCGILL), MDCM (MCGILL)
FRCP(C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CLINICAL MED MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, MONTREAL QUE

POMET, GEORGES, PROF **392-4447**
LEL (ALGER), DES (POITIERS)
CAPES(PARIS)
ASSISTANT PROFESSOR FRENCH
FRENCH LANG LIT, PETERSON HALL
2300 ST MATHIEU, APT 1201 MONTREAL QUE 932-1956

POOLE, RONALD J, PROF **392-4644**
B SC (BIRMINGHAM), PH D (BIRMINGHAM)
ASSOCIATE PROFESSOR BIOLOGY
BOTANY DEPT, STEWART BIOLOGY BLDG
70 HENLEY AVE, TOWN OF MOUNT ROYAL QUE 738-2176

POPKIN, DAVID RICHARD, DR
BSC (MCGILL), MDCM (MCGILL)
FRCS (C)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
ROYAL VICTORIA HOSP

POSER, ERNEST G, PROF **392-4691**
BA (QUEENS), M A (QU), PHD (LONDON)
CPPQ
PROFESSOR PSYCHOLOGY
STEWART BIOLOGY BLDG
4012 MARLOWE AVE, MONTREAL QUE 486-1782

POSNER, BARRY I, DR **392-4716**
M D (MANITOBA)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MED, STRATHCONA MED BLDG
168 BEVERLEY AVE, TOWN OF MT ROYAL QUE

POSTANS, THOMAS C, DR **392-4923**
D D S (MCG)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 4545 SHERBROOKE ST W
4545 SHERBROOKE ST W, MONTREAL 215 QUE

POUNDER, ELTON R, PROF **392-5127**
B SC (MCGILL), PHD (MCGILL)
PROFESSOR PHYSICS
PHYSICS DEPT, PHYSICS BLDG
21 WINDSOR AVE, WESTMOUNT QUE 486-2188

POWELL, ALAN JOHN, MR **392-8031**
P ENG (ENGLAND)
ENG
CHIEF ENGINEER INSTRUCTIONAL COMM CENTRE

I C C RM 304B, MACDONALD ENG BLDG
1025 TERRASSE BIBEAU, STE DOROTHEE,
CITY OF LAVAL QUE

POWELL, MARGARET L, MRS 392-5928
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
1025 TERRASSE BIBEAU, STE DOROTHEE LAVAL QUE

POWER, R M HUGH, DR
B A (LOYOLA)
MRCOG (LOND), FRCS (C)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOLOGY, R V H
1610 SHERBROOKE ST W, SUITE 11 MONTREAL QUE
935-7722

POZNAK, GERALD, MR
DEMONSTRATOR SENIOR FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA DENT BLDG
6000 COTE DES NEIGES RD, MONTREAL QUE

PRAH, JOSEPH, MR
MENS RESIDENCES ADMINIST, MOLSON HALL
MOLSON HALL, 3905 UNIVERSITY, MONTREAL QUE

PRASHAD, JULIET, MRS
CIRCULATION DEPT, MCLENNAN LIBRARY
1850 LINCOLN AVE, APT 705, MONTREAL 108 QUE

PRATT, SUSAN P, MRS 392-4559
B SC (MCGILL), M SC (MCGILL)
PROJECTS COORDINATOR
OFFICE OF UNIVERSITY PLANNING
OFF OF UNIV PLANNING, ADMINISTRATION BLDG
1100 MCGREGOR AVE APT221, MONTREAL 112 QUE
849-5989

PRECOURT, HELENE, MRS 392-4678
FRENCH SUMMER SCHOOL, PETERSON HALL
5745 MARQUETTE ST, APT 1 MONTREAL 331 QUE
272-7631

PRELEVIC, STANISLAV, DR 181- 797
MD (BELGRADE)
LECTURER NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST,
MONTREAL 112 P Q
500 PINE AVE WEST, APT 1201, MONTREAL 130 QUE
842-3640

PREUS, MARILYN I, MISS 937-8511
B SC (ALTA)
RESEARCH ASSISTANT BIOLOGY
HUMAN GENETICS SECT, MTL CHILDREN S HOSP,
2300 TUPPER ST
3410 ATWATER ST, APT 17, MONTREAL QUE 933-3085

PRIDDY, MARGUERITE, MISS
LIBRARIAN DEPT OF PEDIATRICS
DEPARTMENT OF PSYCHIATRY, A M I
1110 SHERBROOKE ST W, APT 407, MONTREAL QUE

PRIMROSE, THOMAS, DR 181-376
BSC (GLASGOW), ARTC (GLAS), MD (EDINBURGH)
FRCS(C), FACS, RRCS(C)
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
WOMENS PAV R V H
2332 FULTON RD, TOWN OF MOUNT ROYAL QUE
738-0353

PRINCE, RAYMOND HAROLD, PROF 844-3971
MD (WESTERN ONTARIO), M SC (W ONT),
B A (W ONT), SPEC PSYCH (WESTERN ONTARIO)
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, 3690 PEEL ST
4453 DE MAISONNEUVE, MONTREAL 215 QUE 931-5298

PRINCIPE, ANN G, MRS 392-3058
B A (BISHOPS)
MEDICAL LIBRARY, MCINTYRE MED BLDG
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PROUDIAN, LUCIE SONIA, MISS 392-5947
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277-8350

PROVAN, JAMES W, PROF 392-5874
B SC (STRATHCLYDE), M S (COLORADO U),
PH D (COLORADO)
ASSISTANT PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
235 SHERBROOKE W, APT 1004 MONTREAL 129, QUE
849-5937

PROVENCHER, ANDRE, PROF 392-8862
BAC (MONTREAL), BACC ARTS (MONTREAL),
LIC EN LETTRES (MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH
935 BOISSY ST, ST LAMBERT QUE

PRZYKORSKI, MAREK, MR
MECH ENGR, THOMAS WORKMAN BLDG
1210 GREEN AVE, MONTREAL QUE 933-3029

PTACK, HERBERT, DR
DDS (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
1538 SHERBROOKE W, MONTREAL 109 QUE
7 BELSIZE RD, MONTREAL 254 QUE

PUGSLEY, WILLIAM H, PROF 392-4726
B COM (MCG), M B A (HARV), PH D (MCG)
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
3495 MOUNTAIN PLACE, APT 706 MONTREAL 109 PQ
845-9286

PUHVEL, MARTIN, PROF 392-4996
BA (MCGILL), MA (MCGILL), PHD (HARVARD)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
32 SUNSHINE DRIVE, DOLLARD DES ORMEAUX QUE
683-6890

PUPO, SALVATORE A, PROF 392-8804
B ED (DUQUESNE UNIV), MSC ED (NOTRE DAME)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
805 LOUIS NORMANDIN, BOUCHERVILLE QUE 655-8961

PURDY, H OSCAR, PROF 392-8822
B A (ACADIA), M A (BOWDOIN)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
94 BRENTWOOD RD, BEACONSFIELD QUE 697-0615

QUAMME, GARY A, DR
D V M (W COLL OF VET MED), M SC (OTTAWA)
U CLINIC R V H, RENAL & ELECTROLYTE DIV,
RM 20 4FL MAIN
BROWLEE, SASKATCHEWAN 842-1251

QUILY, PETER L, PROF
B ED (ALBERTA), M ED (U OF OREGON)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
506 MONTCALM, DOLLARD DES ORMEAUX QUE

QUINN, FRANK, MR
CATALOGUING, MCLENNAN LIBRARY
1474 DECELLES ST, ST LAURENT QUE

QUIRK, GLADYS M., MISS
MICROBIOLOGY & IMMUN, PATHOLOGICAL INST
3450 DRUMMOND, APT 707, MONTREAL 109 QUE

RABIN, ELIJAH Z, DR
MD (QUEENS)
F R C P C, C S P Q
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
MED RESEARCH SCHOLAR UNIVERSITY CLINIC M G H
UNIV CLIN MTL GEN HOSP, 1650 CEDAR,
MONTREAL 109 QUE
4627 VEZINA ST, MONTREAL QUE

RABINOVITCH, EDWARD, DR
CRCP
BSC (MCGILL), MD (TORONTO)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
MONTREAL CHILDRENS
2342 FRENETTE, ST LAURENT P QUE

RABINOVITCH, HYMAN, DR 937-8511
B SC (MCGILL), M SC (MCGILL), M D (TORONTO)

LECTURER DEPARTMENT OF SURGERY
SURGERY MTL CHLD HOSP, 2300 TUPPER ST
4290 MONTROSE AVE, MONTREAL 217 QUE

RABINOVITCH, SAM M, PROF 392-4701
BSC (MCGILL), M A (MCGILL), PHD (PURDUE)
C P P Q
PROFESSOR PSYCHOLOGY
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY,
MONTREAL CHILDRENS HOSP
3770 VENDOME AVE, MONTREAL 260 QUE 488-0536

RABOTIN, MAURICE, PROF 392-4449
LICENLET (PARIS), DR LING (NICE)
ASSOCIATE PROFESSOR FRENCH
RM 126 PETERSON HALL
4231 ESPLANADE ST, MONTREAL 131 QUE

RABY, EVA, MRS 392-5054
LIBRARIAN SCHOOL OF SOCIAL WK LIB
4545 LACOMBE AVE, MONTREAL 249 QUE 342-4714

RABY, JANICE, MISS 392-5211
B A (MCGILL)
BLACKADER LIBRARY, REDPATH LIBRARY
3547 UNIVERSITY APT 20, MONTREAL PQ 845-0464

RACEY, ARTHUR GERALD, DR 453-6580
DDS (MCGILL)
FACD, FICD
PROFESSOR FACULTY OF DENTISTRY
DENTISTRY RM 328 M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
3468 MOUNTAIN ST, MONTREAL QUE 453-1018

RAINS, PRUDENCE, PROF 392-5177
BA (LAKE FOREST), MA (NORTHWESTERN),
PH D (NORTHWESTERN)
ASSISTANT PROFESSOR SOCIOLOGY
STEPHEN LEACOCK BLDG
4807 RUE JEANNE MANCE, MONTREAL QUE

RALPH, DAVID, MR
PHYSICAL PLANT, 840 MCGREGOR
6570 PLACE BOUTET, APT 7, MONTREAL 427 254-3963

RAMACHANDRAN, B, PROF 392-5379
PH D (CATHOLIC U WASH)
VISITING ASSOC PROF MATHEMATICS
BURNSIDE HALL
6630 SHERBROOKE ST WEST, APT 701, MONTREAL QUE
481-3218

RAMSAY, JAMES OWEN, PROF 392-4711
B ED (ALBERTA), PHD (PRINCETON)
ASSOCIATE PROFESSOR PSYCHOLOGY
STEWART BIOL SC BLDG
BOX 202, HUDSON HEIGHTS QUE 236-5295

RAMSAY, JAMES, MR 392-4648
BIOLOGY DEPT, STEWART BIOLOGY BLDG
1032 35TH AVE, VILLE LASALLE QUE 366-3278

RAMSAY, ROBERT ALEC, DR 181-616
B SC (MCGILL), M D C M (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DEPT, A M I
572 ROSLYN AVE, MONTREAL 217 QUE 489-5997

RAMSEY, R BRUCE, DR
BSC (MCGILL), MD CM (MCGILL)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
890 KENILWORTH RD, TOWN OF MOUNT ROYAL QUE

RANGNO, ROBERT E, DR 937-6011
MD (MANITOBA), MSC (MANITOBA)
F R C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
MED & CLIN MED MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
325 41ST AVE, LACHINE QUE

RANJITSINGH, JAMES R, MR
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
3563 UNIVERSITY ST, APT 21 MONTREAL 112 PQ

RANKIN, BARBARA JILL, MISS 392-8880
FACULTY OF EDUCATION, 3700 MCTAVISH
29 HOLTON AVE, WESTMOUNT QUE

RANKIN, NORMAN SCOTT, MR 392-4233
B A (U W O)
GARDNER HALL
MENS RESIDENCES ADMINIST
25 THE STRAND AVE, BRANTFORD ONT

RANSBURG, NICOLAE L, MR
CIRCULATION DEPT, MCLENNAN LIB
4145 BLUERIDGE CRES, APT 58, MONTREAL 109 QUE

RAPAGNA, SOCRATES O W, PROF 392-8801
B A (DON BOSCO COLLEGE), B PH (TURIN),
LIC PED (U DE MTL), M A (U DE MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
1300 30TH STREET, D9-16,
BOULDER COL 80302 U S A 744-0885

RAPPAPORT, STEVEN, PROF
A B (UNIV OF CALIF), PH D (UNIV OF TORONTO)
VISITING ASST PROF PHILOSOPHY
772 SHERBROOKE ST W
1540 SUMMERHILL AVE, APT 404, MONTREAL QUE

RASMUSSEN, THEODORE B, DR 181-584
BS (MINNESOTA), MB (MINN), MS (MINN)
MD (MINNESOTA)
DIR OF THE NEURO INST
PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
29 SURREY DRIVE, MONTREAL QUE 731-2380

RATNER, MURIEL, MRS 392-4251
R N P Q
NURSE HEALTH SERVICE - MCGILL
HEALTH SERVICE, 517 PINE AVE W
4691 BONAVISTA AVE, WESTMOUNT QUE

RATTEE, GEORGINA ANNE, MRS 392-5288
STUDENT SERVICES, ADMIN, F CYRIL JAMES BLDG
1761 CRAWFORD BRIDGE AVE, VERDUN QUE

RATTRAY, BASIL, PROF 392-4840
B SC (MCGILL), M SC (MCG), PH D (PRINCETON)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
625 MILTON ST, APT 1406 MONTREAL QUE 845-7575

RATZER, GERALD, PROF 392-8255
B SC(HONS) (GLASGOW SCOTLAND), M SC (MCGILL)
ASSISTANT PROFESSOR COMPUTING CENTRE
BURNSIDE HALL
1212 PINE AVENUE WEST, SUITE 1903A,
MONTREAL 112 PQ 849-4074

RAY, WALTER, DR 842-1251
A B (EMORY), MD (UNIVERSITY OF FLORIDA)
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
102 FRANCOIS RIVE, MONTREAL 201 QUE

RAYMOND, DIANE A, PROF 453-6580
BSC (HEC) MAN), MSC (DREXEL)
P DT
ASSOCIATE PROFESSOR SCHOOL OF FOOD SCIENCE
SCH OF FOOD SCIENCE, MACDONALD COLLEGE 800,
QUEBEC
69 CIRCLE RD, BEACONSFIELD QUE 695-5043

RAYMOND, ROYAL, MR 392-5758
PHARMACOLOGY DEPT, MCINTYRE MED SCI CTR
750 LAC LEON, ST MACELLINE, COMTE JOLIETTE PQ

REAY, PAULINE, MRS 392-4518
SUPERVISOR STAFF RECORDS
ADMINISTRATION BLDG
300 ELGAR, APT 307, MONTREAL 201 QUE 767-6172

REBNER, ISAAC, DR
B SC (ST PATRICKS COLL), B PS (MONTR),
M A (MONTR), PH D (MONTR)
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP
464 GLENGARRY, MONTREAL 305 QUE 731-2352

REDWOOD, RICHARD GEORGE, PROF 392-5964
B SC (BRISTOL), MA SC (TOR), PH D (BRISTOL)
M I C E, F I STRUCT E

ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
DEPARTMENT CHAIRMAN DEPT OF CIVIL ENG
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
16 WINDSOR AVE, WESTMOUNT 217 QUE 486-4078

REESAL, MICHAEL R, DR
B SC (MCGILL), M SC (MCGILL), PH D (MCGILL)
FRCP(C)
ASSOCIATE PROFESSOR DEPT OF PATHOLOGY(TEACH)
LECTURER RESIDENCY PROGRAMME
PATHOLOGY, 3775 UNIVERSITY ST
102 MGR TACHE, BOUCHERVILLE QUE

REEVES, PHYLLIS, MRS 392-4805
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY
3465 STANLEY ST, APT 17, MONTREAL QUE

REGENER, ERIC, DR 392-6793
B A (N Y U), M FA (PRINCETON), PH D (PRINCETON)
VISITING ASST PROF SCHOOL OF COMPUTING SCIENCE
VISITING ASST PROF FACULTY OF ENGINEERING
VISITING ASST PROF RESEARCH ▮ EQUIPMENT FUND
SCHOOL OF COMPUTING SCIE, BURNSIDE HALL
374 LANSDOWNE AVE, MONTREAL 215 P Q 931-4927

REICHERTZ, DIANE, MRS 392-8072
BA (WISCONSIN MILWAUKEE),
MSW (WISCONSIN MILWAUKEE)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
18 BALLANTYNE SOUTH, MONTREAL W QUE

REICHERTZ, RONALD, PROF 392-8217
BA (WISCONSIN), M S (WIS), PH D (WISCONSIN)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
18 BALLANTYNE SOUTH, MONTREAL 263 QUE 937-4359

REICHMANN, RAYMONDE J, MRS
SCHOOL OF SOCIAL WORK, WILSON HALL,
3506 UNIVERSITY ST
250 KENSINGTON AVE, APT 601 MONTREAL 215, QUE

REID, E A STEWART, DR
BA (MCGILL), MDCM (MCGILL)
FRCP(C), FACP, FACC
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
485 STRATHCONA AVE, WESTMOUNT QUE 937-6011

REID, EVERETT C, PROF
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
C/O MONTREAL GENERAL HOS, 1650 CEDAR AVE,
MONTREAL QUE

REINER, CHARLES, PROF 392-4558
VIRTUOSITY (GENEVA CONSERVATORY)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
1375 GREEN AVE, APT 12 WESTMOUNT 215 QUE

REISWIG, HENRY M, DR 392-5987
AB (U OF CAL), MA (U OF CAL), MS (YALE U)
PHD (YALE U)
ASSISTANT PROFESSOR REDPATH MUSEUM
5310 CUMBERLAND AVE, MONTREAL 265 PQ 489-9624

REJSKIND, F GILLIAN, MRS 392-8804
BA (SASKATCHEWAN), MASTERS (SASKATCHEWAN)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
300 JOLIETTE, APT 1401, LONGUEUIL QUE

REMSEN, DEREK, MR 392-5023
ASST MGR DATA CTR MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
4664 EARNSCLIFFE AVE, MONTREAL 248 QUE 486-2565

RENNERT, MICHAEL D, DR 937-6011
BSC (MCGILL), DDS (MCG), MS (S U BUFFALO N Y)
P Q A O, F R C D
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
5165 QUEEN MARY RD, MONTREAL 248 QUE
5165 QUEEN MARY RD, SUITE 511 MONTREAL QUE
488-1520

RENSHAW, DONALD LLOYD, MR 392-5982
REFERENCE DEPT, MCLENNAN LIBRARY
1738 PARKDALE AVE, VERDUN QUE

RESTREPO, GABRIELA, MISS
EDUCATION LIBRARY, 3700 MCTAVISH ST
3563 UNIVERSITY ST, APT 15, MONTREAL QUE

REVERCHON, MARIE-THERESE, MISS 392-4490
B EN L (SORBONNE), LIC EN LET (SORBONNE),
DIP D ET (SORBONNE)
DOCTORATE (SORBONNE PARIS)
SESSIONAL LECTURER FRENCH
SESSIONAL LECTURER FRENCH
FRENCH, PETERSON HALL, 3460 MCTAVISH
4941 DE MAISONNEUVE BLVD, WESTMOUNT 215 QUE

RHEA, LAWRENCE D, DR
B A (MCGILL), MD CM (MCG)
FRCS (C)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBS &GYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, SUITE 260 MONTREAL QUE

RHINE, ELLIOT J, DR
M B CH B (MANCHESTER),
D R C O G (R C OBSTET & GYN LON),
D A (R COL SURG LON)
L M C C
LECTURER DEPARTMENT OF ANAESTHESIA
ANAESTHESIA M C H, 2300 TUPPER,
MONTREAL 108 QUE
ANAESTHESIA DEPT, MCH 2300 TUPPER ST,
MONTREAL QUE

RIBEIRO, SERAFIM, MR 392-3069
ANIMAL CENTRE, MCINTYRE MED SCI CTR
2710 BARCLAY ST, APT 1, MONTREAL QUE

RICARD, FRANCOIS, PROF
B A (LAVAL), M A (MCGILL),
DOCTORATE (AIX MARSEILLE)
ASSISTANT PROFESSOR FRENCH
PETERSON HALL
10660 ST HUBERT ST, APT 215, MONTREAL 358 QUE
388-9664

RICHARDSON, JOHN B, MR 392-5745
B SC (MCG), PHD (MCGILL)
FRCP (C)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
TEACHING FELLOW DEPT OF PATHOLOGY(TEACH)
PHARM AND THERAPEUTICS, MCINTYRE MED BLDG
4467 MONTROSE AVE, MONTREAL QUE 392-5745

RICHARDSON, JOHN H, MR 392-5257
BA (U OF T), BD (U OF T)
ASSISTANT DIRECTOR STUDENT AID OFFICE
STUDENT AID OFFICE, ADMINISTRATION BLDG
10 KIRKLAND BLVD, KIRKLAND 950 QUE 695-8654

RICHARDSON, MARGARET, MRS 392-5353
BA (ACADIA U)
ADMINISTRATION, ADMINISTRATION BLDG
6550 SHERBROOKE STREET W, APT 306, QUE 487-4318

RICHTER, HORST, PROF 392-5094
BA (GEORGIA-A GOTTINGEN),
PHD (GEORGIA-A GOTTINGEN)
ASSISTANT PROFESSOR GERMAN
GERMAN DEPT, HUGESSEN HOUSE
2200 ROCKLAND RD, MONTREAL 304 QUE 738-6139

RICKARD, CONNIE, MRS
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
3005 BEDFORD RD APT 2, MONTREAL 251, QUE
739-0679

RICKELTON, WILLIAM A, DR 392-5706
BSC (LEEDS), PHD (LEEDS)
PROFESSIONAL ASSOC DEPT OF METALLURGICAL ENG
DEPT METALLURGICAL ENG, FRANK DAWSON ADAMS BLDG
3915 UNIVERSITY ST, MONTREAL QUE

RIDDELL, WAYNE, PROF 392-4526
B MUS (MCG)
ASSISTANT PROFESSOR FACULTY OF MUSIC
555 SHERBROOKE ST. W.
3470 STANLEY, APT 2006, MONTREAL 112 QUE

RIDER, LILLIAN, MISS 392-3092
BA (BISHOPS), MLS (MCGILL)

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625 MILTON ST, APT 1208, MONTREAL QUE 844-3635

RIENDEAU, JOHN ROY, MR 392-5760
SUPERVISOR OF PARKING AND SECURITY
PARKING & SECURITY O DEPT
DEPT, 840 MCGREGOR
100 GARDEN CRES APT 9, MONTREAL QUE, MTL QUE

RIGAULT, ANDRE A L, PROF 392-4435
B ACC (PARIS), LICENCE (PARIS), D PH (PARIS)
D E S (PARIS)
PROFESSOR LINGUISTICS
3465 PEEL ST
5006 VICTORIA AVE, MONTREAL QUE

RIGBY, MARY J, MISS 392-4421
B A (HONS) (SHEFFIELD)
MCGILL QUEENS PRESS, 3458 REDPATH ST
3435 AYLMER APT 2, MONTREAL 130, QUE

RIGELHOF, MARILYN, MRS 392-8846
BA (SASK)
SESSIONAL LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH ST
110 SEDGEFIELD AVE, POINTE CLAIRE QUE

RIGELHOF, ROGER, PROF 392-5905
B SC (SASKATCHEWAN), M SC (WAT),
PH D (MCMASTER)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL, ROOM 1222
168 DEVITO AVE, POINTE CLAIRE 720 QUE 697-7447

RIGGS, ALVIN R, PROF 392-5187
B A (DELAWARE), M A (YALE), PHD (YALE)
ASSOCIATE PROFESSOR HISTORY
STEPHEN LEACOCK BLDG
14618 LILVA DRIVE, CENTREVILLE VIRGINIA, 22020

RILEY, DOUGLAS R, PROF 392-8892
BSC (SPRINGFIELD COLLEGE),
M SCIENCE (SPRINGFIELD)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
18 LOUVIGNY ST, LORRAINE QUE 625-4085

RILEY, IRMA K, PROF 392-5029
BS (COLUMBIA), M A (COLUMBIA)
ANPQ, CNA, CNF
ASSOCIATE PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
4721 CONNAUGHT AVE, MONTREAL 262 QUE 482-5045

RILEY, WALKER ROY, PROF 453-6580
BSA (TORONTO)
ASSISTANT PROFESSOR DEPARTMENT OF AGRONOMY
AGRONOMY, MACDONALD COLLEGE 800, QUEBEC
111 CAMBRIDGE RD, BAIE D URFE QUE 453-3309

RIPLEY, JOHN, PROF 392-5000
BA (NEW BRUNSWICK), M A (NEW BRUNSWICK),
PHD (BIRMINGHAM)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH, ARTS BLDG
20705 LAKESHORE RD, BAIE D URFE QUE 453-9646

RISHIKOFF, BARBRA MYRA, MISS 392-4757
CTR FOR CONTINUING EDUC, STRATHCONA HALL
3565 LORNE AVE NO 101, MONTREAL 130 QUEBEC

RISHIKOFF, JACK RICHARD, DR
B SC (MCGILL), M SC (MCG)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
5763 FAIRSIDE, COTE ST LUC, MONTREAL QUE

RIVET, MARIE, MISS 392-4433
LINGUISTICS DEPT, 3465 PEEL ST
1110 SHERBROOKE ST W, APT 704, MONTREAL QUE
284-2386

ROBB, J PRESTON, DR 181-1876
BSC (MCGILL), MDCM (MCGILL)
PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
419 ROSLYN AVE, WESTMOUNT 217 QUE 937-2149

ROBERTS, JOHN D. T., MR 937-6011
BA (BIRMINGHAM UNIV)
EXTENSION ASST UNIVERSITY CLINIC M G H
MCGILL EXT AID OFFICE, MTL GEN HOSP 1650 CEDAR,
MONTREAL 109 QUE
772 CANORA RD, MONTREAL 304 QUE

ROBERTSON, DAVID N S, PROF 392-4904
BA (QUEENS), B PAED M ED (TORONTO)
ASSOCIATE DIRECTOR
CONT ED-BUSINESS & MANAGEMENT
ASSOCIATE PROFESSOR
CONT ED-BUSINESS & MANAGEMENT
CENTRE FOR CONT EDUC, STRATHCONA HALL
1300 LOMBARD CRESCENT, APT 26,
TOWN MT ROYAL QUE 733-9785

ROBERTSON, JOAN M, MRS 392-5706
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
P O BOX 323, HUDSON HEIGHTS QUE 236-7391

ROBERTSON, LOUISE, MISS 392-5400
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ROBERTSON, MARGARET E, MISS 392-4769
BEM
FUND OFFICER GRADUATE SOC OF MCGILL
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
3593 BENNY AVE, MONTREAL QUE

ROBERTSON, MARY C, PROF 392-5755
BA (AGNES SCOTT), M S (EMORY), MPH (YALE)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
ROYAL VICTORIA COLLEGE, 3425 UNIVERSITY ST
4643 SHERBROOKE ST W, APT 5, MONTREAL 215 QUE

ROBILLARD, F ALBERT, DR
B A (MCGILL), M D C M (MCG)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3615 NORTHCLIFFE AVE, MONTREAL 28 QUE 937-1732

ROBINSON, BRIAN, PROF 392-4992
B A (MANITOBA), M A (COL), PH D (SORBONNE)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
528 PRINCE ARTHUR W, APT 1 MONTREAL QUE
842-2807

ROBINSON, GERTRUDE J, PROF 392-4802
BACHELOR (SWARTHMORE COLLEGE), M A (CHICAGO),
PH D (UNIV OF ILLINOIS)
ASSISTANT PROFESSOR SOCIOLOGY
LEACOCK BLDG, ROOM 725B
459 ARGYLE AVE, WESTMOUNT QUE 937-4362

ROBINSON, JONATHAN, PROF 392-5167
BA (BISHOPS), MA (MCGILL), B A C (ROME)
PHD (EDINBURGH)
ASSOCIATE PROFESSOR PHILOSOPHY
DEPARTMENT CHAIRMAN PHILOSOPHY
PHILOSOPHY, 772 SHERBROOKE ST.W.
3455 COTE DES NEIGES, APT 512, MONTREAL QUE
288-1806

ROBINSON, WILFRED R, DR
BA (SIR GEORGE WILLIAMS), B SC (SIR G WMS),
DDS (MCGILL UNIVERSITY)
LECTURER FACULTY OF DENTISTRY
3410 BENNY AVE
3410 BENNY AVE, MONTREAL 261 QUE 489-2625

ROBSON, HUGH G, PROF 181-1771
BSC (MCGILL), MD (MCGILL)
FRCP(C)
ASSOC PROF EXP MED
ASSOC PROF MICROBIO & IMMUNOL
MICROBIOLOGY & IMMUN, ROYAL VICTORIA HOSPITAL
175 DUFFERIN RD, MONTREAL QUE 486-6908

ROBSON, JOHN, PROF 392-5404
BA (CAMBRIDGE), MA (CAMBRIDGE),
SCD (CAMBRIDGE)
F R S C
DEPARTMENT CHAIRMAN PHYSICS
PROFESSOR PHYSICS

PHYSICS DEPT, PHYSICS BLDG
635 SYDENHAM AVE, WESTMOUNT QUE 481-1579

ROCHMAN, SAUL, DR
BA (QUEEN S), M D (MCGILL)
DEMONSTRATOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER, MONTREAL QUE
5150 MACDONALD APT 202, MONTREAL 254 PQ
481-4906

ROGERS, RODDY R, PROF 392-4464
BS (UNIVERSITY OF TEXAS),
SM (MASS INST OF TECH), PHD (NEW YORK UNIV)
ASSOCIATE PROFESSOR METEOROLOGY
METEOROLOGY, BURNSIDE HALL
4592 WILSON AVE, MONTREAL QUE 484-8967

ROJOWSKI, PREMYSLAW L, MR 392-4865
M SC (POZNAN POLAND)
GASTROINTEST RES LAB, DONNER BLDG
62 JACQUES BOURDON AVE, BOUCHERVILLE QUE

ROLBIN, NORA, MISS
BOT (MCGILL)
QSOTI
DEMONSTRATOR PHYSICAL▮OCCUPATIONAL THERAPY
MONTREAL GENERAL HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3295 RIDGEWOOD AVE, APT 17, MONTREAL QUE

ROLLAUER, ERWIN, MR 392-5023
PROGRAMMER MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG
6630 13TH AVE, MONTREAL 408 QUE 722-5604

ROMAGNOLI, ALEXANDER, DR
M D (FLORENCE ITALY), D A (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA M G H, 1650 CEDAR AVE,
MONTREAL 109 QUE
3033 SHERBROOKE ST W, APT 705, MONTREAL QUE

ROMAN, TED N, DR 181-1882
BA (WESTERN ONTARIO), M D (WESTERN ONTARIO)
F R C S (C), C S P Q
ASSISTANT PROFESSOR THERAPEUTIC RADIOLOGY
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBST AND GYNAECOLOGY, THERAPEUTIC RADIOLOGY,
R V H
660 LANSDOWNE AVE, WESTMOUNT 217 QUE 482-6105

ROMER, TADEUSZ, PROF 392-4491
LICENSE (LAUSANNE), LICENSE (LAUSANNE)
DIRECTOR
STAFF FRENCH COURSES, PETERSON HALL
643 MILTON ST, MONTREAL 18 QUE 842-6578

ROMOFF, HARVEY, MR 392-5886
B A (MCGILL)
SESSIONAL LECTURER ECONOMICS
STEPHEN LEACOCK BLDG
369 WINDSOR STATION, MONTREAL QUE

RONA, GEORGE, DR 181-1781
MD (MED UNIV BUDAPEST), PHD (HUNG SC ACADEMY)
FRC
PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGICAL INST
80 HENLEY AVE, TOWN OF MOUNT ROYAL QUE 731-6542

RONDEAU, RAYMOND, MR 392-5417
ARCHITECTURE, MCCONNELL ENG BLDG
4377 BOYER ST, MONTREAL QUE

RONSLEY, JOSEPH, PROF 392-4992
B SC (NORTHWESTERN U(ILL)),
M A (NORTHWESTERN U (ILL)),
PH D (NORTHWESTERN U(ILL))
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
1 SUNNYSIDE AVE, MONTREAL 217 QUE 937-0132

ROOP, TWILA K, MRS 392-4466
CHEMISTRY, OTTO MAASS CHEMISTRY BLD
3435 DRUMMOND ST APT 3, MONTREAL 109 PQ
842-7071

ROPER, BEVERLEA, MRS 392-4320
DIP P&O TH (TORONTO)
LECTURER PHYSICAL▮OCCUPATIONAL THERAPY
PHYS & OCCUP THERAPY, DAVIS HOUSE
1329 REDPATH CRESC, MONTREAL 109 QUE 844-9066

ROSALES, JOSE K, DR 937-8511
M D (SANTO TOMAS UNIV), DIP ANAES (MCGILL)
FACA, FRCP(C)
ASSOCIATE PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA MTL CHLD HSP, 2300 TUPPER ST,
MONTREAL 108 QUE
64 BANSTEAD RD, MONTREAL QUE

ROSE, BRAM, DR 181-455
BA (MCGILL), PHD (MCGILL), M SC (MCG)
MD (MCGILL)
FRS(C)
PROFESSOR UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H,
IMMUNOCHEM & ALLERGY DIV
3468 DRUMMOND ST, APT 505, MONTREAL QUE

ROSE, MARJORIE, MISS 392-4713
BA (MCGILL)
ADM ASSISTANT III PSYCHOLOGY
STEWART BIOL BLDG
3455 AYLMER ST, APT PH1 MONTREAL PQ 843-6736

ROSEN, HARRY, DR
FICD FACD
BSC (MCGILL), DDS (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
3545 COTE DES NEIGES, SUITE 107, MONTREAL 109
3545 COTE DES NEIGES RD, APT 107, MONTREAL QUE

ROSENBAUM, PETER, DR 842-1251
B SC (MCGILL), M D C M (MCGILL)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHALMOLOGY, ROYAL VICTORIA HOSPITAL
637 ARGYLE AVE, WESTMOUNT 217 QUE 844-8845

ROSENBERG, GILBERT M, DR 488-2301
B SC (MCGILL), M D C M (MCGILL)
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
MAIMONIDES HOSP FOR AGED,
5795 CALDWELL CTE ST LUC
5015 HINGSTON AVE, MONTREAL 253 QUE 488-5834

ROSENBLOOM, MARVIN B, DR
LMCC
BSC (MCGILL), MDCM (MCGILL)
LECTURER DIAGNOSTIC RADIOLOGY
3775 COTE STE CATHERINE, MONTREAL 249 QUE
4697 CARLTON, MONTREAL 217 P QUE

ROSENFELD, JULIE, MS
LECTURER SCHOOL FOR GRAD NURSES
SCHOOL OF NURSING, WILSON HALL
3777 COTE DES NEIGES RD, APT 110,
MONTREAL 109 QUE

ROSENFELD, MYRA NAN, PROF 392-4843
B A (SARAH LAWRENCE), MA (COLUMBIA),
PH D (HARVARD)
ASSISTANT PROFESSOR ART HISTORY
ARTS BLDG
2300 ST MATHIEU APT 1504 933-3568

ROSENFELD, ROBERT, DR 937-8511
B S C (MCGILL), M D (GENEVA)
L M G C, F R C P
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
4580 QUEEN MARY RD, APT 406 731-8716

ROSENTHALL, LEONARD, DR
BSC (MCGILL), M SC (MINN), MD (MCGILL)
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
DIAG RADIOLOGY MGH, 1650 CEDAR AVE,
MONTREAL 109 QUE
6873 EDISON RD, MONTREAL 269 QUE

ROSKIES, ETHEL, DR
M A (MCGILL), M A (MCGILL), PHD (MTL)
CPPQ
LECTURER DEPARTMENT OF PSYCHIATRY
PSYCHIATRY M G H
26 ALBION RD, MONTREAL 254 QUE 343-6498

ROSMAN, MICHAEL ALEXANDER, DR 761-1494

BSC (MCGILL), MD (OTTAWA)
FRCS(C)
LECTURER MCGILL-M C H SURGERY CLINIC
MONTREAL CHILDREN'S HOSP
525 DE GASPE, NUNS ISLAND, MONTREAL 201 QUE
937-8511

ROSS, DIANA D, MISS 392-4501
B ED (MCGILL)
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
6247 TRANS ISLAND AVE, MONTREAL 252 QUE
739-1314

ROSS, HOWARD I, DEAN 392-5998
OBE
LLD (QUEENS)
BA (MCGILL), D SC (SHERBROOKE), MA (OXFORD)
C A
PROFESSOR FACULTY OF MANAGEMENT
DEAN FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
56 SUMMIT CIRCLE, MONTREAL 217 PQ 932-8168

ROSS, MARGARET, MISS 392-5034
BSC N (STFX), B ED (DALHOUSIE)
LECTURER SCHOOL FOR GRAD NURSES
DEPT. WILSON HALL
1360 DEPATIE ST, MONTREAL 381 QUE

ROSTAING, ANDREW J, MR 392-4370
CD
BA (ALBERTA)
SUPERINTENDANT(CAMPUS SERVICES)
ARTS BLDG LEACOCK BLDG & DAWSON HALL
PHYSICAL PLANT, 840 MCGREGOR
779 JEAN BOIS, BOUCHERVILLE QUE 655-8664

ROSTANT, JOHN S, DR
L M C C, F R C P (C)
B SC (MCGILL), MD CM (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOSP
6630 SHERBROOKE ST W, APT 902, MONTREAL QUE

ROTENBERG, ARTHUR DANIEL, DR
B A (U OF T), PH D (U OF T)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
LECTURER THERAPEUTIC RADIOLOGY
DIAGNOSTIC RADIOLOGY, 3775 COTE STE CATHERINE,
MONTREAL 249 QUE
6616 FLEET ROAD, MONTREAL 266 QUE 342-3111

ROTENBERG, AUBEY, DR 181-1700
B A (U OF T), M A (U OF T), PH D (N Y U)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXP MED, ROYAL VICTORIA HOSP
6616 FLEETROAD, MONTREAL 266 QUE

ROTH, CHARLES, PROF 392-5956
B SC (MCGILL), M SC (MCG),
PH D (HEBREW U JERUSALEM)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
5808 WINTWORTH, COTE ST LUC, MONTREAL QUE

ROTHMAN, STANLEY J, DR 937-8511
A B (CORNELL), M D C M (MCGILL)
LECTURER NEUROLOGY & NEUROSURGERY
3801 UNIVERSITY ST
4027 VENDOME AVE, MONTREAL 260

ROTHOLZ, TRYNA, MRS
BA (MCGILL), MSW (MCGILL)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY STREET
125 LAURENT, DOLLARD DES ORMEAUX, QUE 683-8894

ROULSTON, DELYSIA, MRS 392-4303
O T DIP (NEW ZEALAND)
LECTURER OF OCCUPATIONAL THERAPY
PHYSICAL & OCCUP THER, DAVIS HOUSE
418 WICKHAM, ST LAMBERT QUE 672-1722

ROURKE, EDDITH E, MRS 453-6580
DINING DEPT, MACDONALD COLLEGE 800, QUEBEC
245 BEACONSFIELD BLVD, BEACONSFIELD QUE
697-2293

ROUSSEAU, T, MISS
B A (MONTREAL), DIP OF SOCIAL WORK (MCGILL),
MD (MONTREAL)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
MONTREAL CHILDRENS HOSP
3885 LACOMBE, MONTREAL 249 P QUE

ROUSSELL, BERTHA, MRS 392-5315
PAYROLL DEPT, ADMINISTRATION BLDG
3117 VERDUN AVE APT 2, VERDUN 203 P Q 761-5681

ROWAT, KATHLEEN, PROF 392-5029
BSCN (TORONTO), MSC (CALIFORNIA)
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
4326 SHERBROOKE ST W, APT 32,
MONTREAL 215 QUEBEC 931-2978

ROWLAND, JEAN ABBOTT, MRS 453-6580
ANIMAL SCIENCE, MACDONALD COLLEGE 800, QUEBEC
125 ELMWOOD CRES, PINCOURT QUE 453-8347

ROWLINSON, ELIZABETH, PROF 392-4551
BA (OXFORD), B SC (OXON), M A (OXON)
PHD (MCGILL)
ASSISTANT PROFESSOR MATHEMATICS
ASSOCIATE DEAN STUDENT SERVICES, ADMIN
STUDENT SERVICES, ADMIN, BURNSIDE HALL
434 FORTIER ST, ST HILAIRE QUE 467-3924

ROY, JEAN LOUIS, DR 392-5202
BA (LAVAL), MA (MONTREAL), PH D (MCGILL)
DIRECTOR FRENCH CANADA STUDIES
ASSISTANT PROFESSOR FRENCH CANADA STUDIES
FRENCH CANADA STUDIES, 3475 PEEL ST
351 EDISON ST, ST LAMBERT QUE

RUBEN, HAROLD, PROF 392-5385
BSC (UNIV OF LONDON), PHD (LONDON)
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
385 LOCKHART AVE, MONTREAL 304 QUE 342-3477

RUBIN, D S, PROF 392-4996
B A (OBERLIN COL), PH D (TOR)
ASSISTANT PROFESSOR ENGLISH
ARTS BLDG
2250 GUY ST, APT 1207, MONTREAL QUE

RUBIN, DIANA, MISS 392-5109
FAC OF ARTS & SCI, DAWSON HALL
4585 DUPUIS ST, APT 10, MONTREAL 249 QUE

RUBIN, ELAINE B, MS 392-4280
B A (MCGILL), M A (UNIV OF TORONTO)
ADM ASSISTANT II EAST ASIAN LANGUAGES
3511 PEEL ST RM 201
3620 RIDGEWOOD AVE, APT 320, MONTREAL QUE
737-3481

RUBINSTEIN, DAVID, DR 392-3021
BSC (MCGILL), M SC (MCG), MDCM (MCGILL)
PHD (MCGILL)
PROFESSOR DEPARTMENT OF BIOCHEMISTRY
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
BIOCHEMISTRY DEPT, MCINTYRE MED SC BLDG
1821 ROMITI ST, CHOMEDEY LAVAL QUE 688-2096

RUBINYI, P, MR
SESSIONAL LECTURER FACULTY OF MANAGEMENT
1020 PINE AVENUE WEST
1405 DUMFRIES RD, TOWN OF MOUNT ROYAL,
MONTREAL QUE

RUDDICK, DONALD W, DR
B A (MCGILL), MD CM (MCG)
FRCS, FRCS(C), FACS
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP
2015 CRESCENT AVE, MONTREAL QUE

RUEDY, JOHN RICHARD, DR 937-6011
MDCM (QUEENS)
FRCP(C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC M G H
ASSOCIATE PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARMACOLOGY DEPT, MCINTYRE MED SCI CTR
446 CHEMIN DES MOULINS, MONT ST HILAIRE QUE
467-7361

RUIZ-NAVARRO, JOAQUIN, DR 766-8511
MD (VALENCIA), DOCTORAL THESIS (BOLOGNA)
DOCTOR IN MED.
LECTURER DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY, DOUGLAS HOSPITAL,
6875 LASALLE BL VERDUN Q
784 JACQUES CARTIER W, LONGUEUIL P QUE 670-1208

RUMIN, NICHOLAS, PROF 392-5392
B ENG (MCGILL), M SC (MCG), PH D (MCGILL)
C E Q
ASSOCIATE PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
127 LAZARD AVE, TOWN OF MOUNT ROYAL QUE
737-4951

RUNNALLS, DONNA, PROF 392-4827
B A (BRITISH COLUMBIA), B D (MCGILL),
PHD (TORONTO)
ASSISTANT PROFESSOR FAC OF RELIGIOUS STUDIES
WARDEN ROYAL VICTORIA COLLEGE ADMIN
RELIGIOUS STUDIES, DIVINITY HALL
651 SHERBROOKE ST W, MONTREAL 111 QUE 392-5812

RUSSELL, ISOBEL R, PROF
B ED (U OF SASK), M ED (U OF SASK)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
ELEMENTARY EDUCATION, 3700 MCTAVISH ST
3855 ROYAL AVE, MONTREAL QUE

RUSSELL, LINDA J, MISS 392-8095
BA (BISHOPS UNIV)
MCGILL REPORTER, F CYRIL JAMES BUILDING
250 CLARKE AVE, APT 803, MONTREAL 215 QUE

RUVINSKY, MORRIE, MR
SPECIAL LECTURER ENGLISH
SPECIAL LECTURER COURSE DEVELOPMENT FUND
ENGLISH, ARTS BLDG
2205 ST MARC, APT 22 MONTREAL PQ 932-5240

RYAN, DAVID G, PROF 392-8079
B SC (QUEEN S), M SC (QU), PH D (BIRMINGHAM)
ASSOCIATE PROFESSOR PHYSICS
PHYSICS DEPT, FOSTER RADIATION LAB
5460 SUNNYBROOKE AVE, APT 502, MONTREAL 267 QUE

RYAN, WILLIAM LIONEL, PROF 392-8811
BA (ST MARYS UNIV HALIF), B ED (UNIV MONTREAL)
M A (MCGILL), MA (UNIV MONTREAL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
40 ST FRANCIS BLVD, CHATEAUGUAY QUE 692-4676

RYBCZYNSKI, WITOLD, MR 392-8021
B ARCH (MCGILL), M ARCH (MCGILL)
MEMBER PQAA, MEMBER RAIC
RESEARCH ASSISTANT SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNEL ENG BLDG
OLD MILL ROAD, POINTE DU MOULIN,
ILE PERROT QUEBEC 4

SAHA, GOPAL B, PROF 181-1892
BSC(HONS) (DACCA), M SC (DACCA), PH D (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
SUB DEPT NUCLEAR MED, R V H
5125 MONTCLAIR AVE, MONTREAL 265 QUE 181-1892

SALDANHA, MYRTLE, MRS 392-8873
FACULTY OF EDUCATION, DEPT OF GRAD STUDIES,
3700 MCTAVISH
165 STRATHYRE AVE APT205, LASALLE WEST 650 QUEB
366-3958

SALEM, MOHAMED H, DR 181-723
PH D (ILLINOIS)
PROFESSIONAL ASSIST UNIVERSITY CLINIC R V H
UNIVERSITY CLINIC R V H, MCG UNIV CLINIC,
ROYAL VICTORIA HOSPITAL
3433 DUROCHER ST, APT 708, MONTREAL 130 QUE

SALISBURY MURPHY, SONIA, DR
BSC (MCGILL), MD (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ROYAL VICTORIA HOSPITAL
3642 LORNE CRESCENT, MONTREAL QUE

SALMAN, TALAT, PROF 392-5703
B ENG (MCGILL), M ENG (MCG), PH D (MCGILL)
PROFESSOR DEPT OF METALLURGICAL ENG
DEPT OF METALLURGICAL EN,
FRANK DAWSON ADAMS BLDG
59 WINSTON CIRCLE, POINTE CLAIRE QUE 695-1624

SALO, TURHO ILMARI, MR 181-1771
B SC (SIR GEORGE WILLIAMS)
MICROBIOLOGY ▮ IMMUNOLOG,
3775 UNIVERSITY STREET
58 ST CHARLES ST, CHATEAUGUAY QUE 691-7454

SAMMETT, FLORENCE, MISS 392-4501
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
4740 FULTON, APT 9, MONTREAL 247 QUE

SAMUELS, WALTER, MR 392-5380
ACQUISITIONS, MCLENNAN LIB
P O BOX 174, STATION H, MONTREAL 107 QUE

SANCHEZ, JULIO C, PROF 392-4621
B A (MATANZAS INST), B S (MATANZAS CUBA),
PH D (HAVANA)
ASSOCIATE PROFESSOR SPANISH
SPANISH LANG & LIT, 3491 PEEL ST
5795 DECELLES AVE, MONTREAL 251 QUE 733-8195

SANCHO, NEVILLE G F, PROF 392-5377
B SC (BELF), PH D (BELF)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4402 JOLICOEUR ST, PIERREFONDS QUE 626-6604

SANDER, FINN, DR
B SC (S G W U), PH D (MCGILL)
DIRECTOR BELLAIRS RES INST
ST JAMES BARBADOS W I
C/O BELLAIRS RES INST, ST JAMES BARBADOS,
WEST INDIES

SANDERS, WILLIAM D, DR 392-4924
BSC (SIR GEORGE WILLIAMS), DDS (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
ASSISTANT DEAN FACULTY OF DENTISTRY
DENTISTRY DEPT, STRATHCONA MED BLDG
116 BATHURST ST, POINTE CLAIRE QUE

SANDIFORD, PETER J, PROF 392-5808
B A (U OF TORONTO), MA (U OF TORONTO),
PH D (U OF TORONTO)
PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
128 BALFOUR AVE, TOWN OF MOUNT ROYAL QUE
737-1244

SANDISON, JOHN WESTWOOD, DR
MB (EDINBURGH)
ASSOCIATE PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, ROYAL VICTORIA HOSPITAL
C/O DEPT OF ANAESTHESIA, ROYAL VICTORIA HOSPITA
282-3892

SANDOR, THOMAS, PROF 876-7070
DIPL CHEM (BUDAPEST), PH D (TORONTO)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, NOTRE DAME HOSPITAL
4140 COTE STE CATHERINE, MONTREAL 249 QUE
876-7070

SANTLAL, PETER, MR
CIRCULATION DEPT, MCLENNAN LIBRARY
3546 AYLMER ST, APT 14, MONTREAL 130 QUE

SARF, HAROLD, PROF 392-5886
B A (SAN FRAN STATE), M A (UNIV CALIF)
ASSISTANT PROFESSOR POLITICAL SCIENCE
LEACOCK BLDG
400 PRINCE ARTHUR W, APT 6 MONTREAL 130 QUE
849-4969

SASYNIUK, BETTY I, PROF 392-4259
B S P (U OF SASK), PH D (U OF MANITOBA)
ASPET PSC
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
MCINTYRE MED BLDG
3470 STANLEY ST, APT 1401, MONTREAL 112 QUE
843-4995

SATTERFORD, JEAN, MRS 392-5493

DEPT OF GEOGRAPHY, BURNSIDE HALL
16 CIRCLE RD, ILE BIGRAS, LAVAL PQ 689-5474

SATTLER, R O, PROF 392-4647
BSC (TUBINGEN), PH D (MUNICH)
ASSOCIATE PROFESSOR BIOLOGY
DEPT OF BOTANY, STEWART BIOLOGY BLDG
200 DE GASPE ST, APT 614, NUN S ISLAND QUE

SAULL, VINCENT A, PROF 392-5837
BSC (MCGILL), D SC (M I T), PHD (M I T)
PROFESSOR GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
1 6TH AVE, ROXBORO QUE 684-3046

SAUNDERS, ELIZABETH, MRS 392-4714
B A (U W O)
PLQ
LIBRARIAN MCLENNAN LIBRARY - RARE BOOKS
RARE BOOK ROOM, MCLENNAN LIBRARY
211 BROCK AVE N, MONTREAL 263 QUE 486-4721

SAUVE, SHIRLEY, MRS 392-5833
DEPT OF EPIDEM & HEALTH, 1110 PINE AVE W,
MONTREAL 112 P Q
151 CALLIERES, LONGUEUIL 125 QUE 679-2856

SAVAGE, CHERYL, MS 392-8828
EDUCATION, 3700 MCTAVISH ST
2992 EDOUARD MONTPETIT, MONTREAL 250 QUE
735-2370

SAVAGE, STUART B, PROF 392-5173
B ENG MECH (MCGILL), M S (CAL INST OF TECHN),
ENG DEG (CAL INST OF TECHN), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
531 PRINCE ALBERT AVE, MONTREAL 217 QUE
288-8308

SAVEREUX, CECILE, MISS 392-5878
FACULTY OF ENGINEERING, MACDONALD ENGR BLDG
4125 PARTHENAIS APT 105, MONTREAL 135 QUE
525-1703

SAYEGH, VICTOR, DR
M B CH B (IRAQ)
R C P S (Q)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY
MONTREAL CHILDRENS HOSP
12 BRIARDALE ROAD, MONTREAL 254 QUE 342-3111

SCARONI, ANNE, MISS 932-5274
RESEARCH GRANTS OFFICE, DAWSON HALL
3484 AYLMER ST, APT 11, MONTREAL 130 QUE

SCAROWSKY, MANUEL, MR
BSC (MCGILL), MSC (MCGILL)
LECTURER MATHEMATICS
BURNSIDE HALL
5545 VAN HORNE AVE, MTL 252 QUE 342-0627

SCHACHTER, ALBERT, PROF 392-5218
BA (MCGILL), D PHIL (OXFORD)
DEPARTMENT CHAIRMAN CLASSICS
PROFESSOR CLASSICS
CLASSICS, STEPHEN LEACOCK BLDG
5559 BORDEN AVE, COTE ST LUC QUE

SCHARF, SUSAN GAIL, MRS 392-4953
B A (SIR GEORGE WILLIAMS)
DIRECTORS OFFICE, MCLENNAN LIBRARY
5945 SOUART AVE, APT 2 MONTREAL P Q 737-2461

SCHILDKROUT, ENID, DR
B A (SARAH LAWRENCE COLLEGE),
M A (NEWNHAM U CAMBRIDGE),
PH D (NEWNHAM U CAMBRIDGE)
VISITING ASST PROF ANTHROPOLOGY
STEPHEN LEACOCK BLDG
3465 STANLEY ST, MONTREAL QUE

SCHLEIFER, MICHAEL, DR 392-5952
BA (MCGILL), B PHIL (OXON), M A (OXFORD)
PHD (MCGILL)
ASSISTANT PROFESSOR PHILOSOPHY
ASSISTANT PROFESSOR PSYCHOLOGY
PHILOSOPHY DEPT, STEPHEN LEACOCK BLDG
5235 ROSEDALE AVE, MONTREAL 265 QUE 392-5170

SCHLIEPER, ANNE E, DR
B A (MCGILL), M PS SC (MCGILL), PH D (MCGILL)
TEACHING ASSISTANT PSYCHOLOGY
PSYCHOLOGY, STEWART BIOLOGY BLDG
3663 LORNE CRESCENT, APT 1, MONTREAL QUE

SCHLIEPER, HEINRICH-CONRAD, MR 392-4723
B A (MCGILL)
LECTURER HISTORY
HISTORY DEPT, STEPHEN LEACOCK
3663 LORNE CRES, APT 1 MONTREAL QUE 288-4879

SCHMIDT, GEORG, PROF 392-4296
BSC (UNIV OF NATAL), M SC (U SOUTH AFRICA),
PHD (STANFORD)
ASSISTANT PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
515 FRANCOIS, APT 112 NUNS ISLAND,
MONTREAL 201 QUE 761-5767

SCHMIDT, JOSEF, PROF 392-5091
P H D (UNIV ZURICH)
ASSISTANT PROFESSOR GERMAN
GERMAN DEPT, 3666 MCTAVISH ST
5166 COTE ST ANTOINE RD, MONTREAL 260 QUE
486-3861

SCHNEIDER, PETER OSKAR, DR 842-1251
HON B SC (WINDSOR), PH D CHEM (WINDSOR)
LECTURER UNIVERSITY CLINIC R V H
CLINICAL BIOCHEMISTRY
5960 PIE IX, APT 23 MONTREAL 408 PQ 728-0039

SCHOENAUER, NORBERT, PROF 392-5422
B ARCH (HUNG TECH UNIV), M ARCH (MCGILL)
MRAIC
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
DIRECTOR SCHOOL OF ARCHITECTURE
ARCHITECTURE DEPT, MCCONNELL ENG BLDG
53 PROSPECT ST, MONTREAL 215 QUE 932-9166

SCHON, CHRISTOPHER R, MR 392-8031
CREAT PHOTO CERT (LONDON ARTS)
PROD MANAGER INSTRUCTIONAL COMM CENTRE
TEACHING ASSISTANT ENGLISH
ENGLISH, ARTS BUILDING
412 METCALFE ST, WESTMOUNT QUE 931-6746

SCHOPFLOCHER, PAULA, DR 181-1781
M D (HEIDELBERG)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY SERVICE, 3775 UNIVERSITY ST
789 UPPER BELMONT AVE, MONTREAL QUE 486-1637

SCHREIBER, E M, DR 392-5180
BA (HARPUR), PHD (PRINCETON)
VISITING ASST PROF SOCIOLOGY
SOCIOLOGY, STEPHEN LEACOCK BLDG
3448 PEEL STREET, MONTREAL 112 QUEBEC

SCHREIBER, JULIUS J W, PROF 392-5407
B SC(ARCH) (GLASGOW), M L A (HARVARD)
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNELL ENG BLDG

SCHREINER, MICHAEL C, MR 392-3058
BA (WABASH)
MEDICAL LIBRARY, MCINTYRE MED BLDG
5119 DUROCHER, MONTREAL 153 QUE 274-8428

SCHROEDER, HILDEGARD, MISS 392-5369
DEPT OF MATHEMATICS, BURNSIDE HALL
2165 LE CARON, APT 6, MONTREAL QUE

SCHUEPP, PETER, PROF 453-6580
DIP SC NAT (ETH ZURICH), PHD (TORONTO)
ASSISTANT PROFESSOR DEPARTMENT OF AGRIC PHYSICS
AGRICULTURAL PHYSICS, MACDONALD COLLEGE 800 PQ
3 MAPLE AVE, MONTREAL 453-3464

SCHULLER, JEAN PAUL, MR 392-8230
BA (OTTAWA)
ASST REG STUD REC, REGISTRARS OFFICE
ADMINISTRATION BLDG
3587 UNIVERSITY ST, APT 2, MONTREAL QUE

SCHULMAN, HERBERT M, PROF
BA (BARD COLLEGE), PHD (YALE)
ASSISTANT PROFESSOR BIOLOGY
JEWISH GENERAL HOSP, 3775 COTE ST CATHERINE
81 HUDSON AVE, TOWN OF MOUNT ROYAL QUE 738-0682

SCHUSTER, INGRID H, PROF 392-5094
A H G (ROSENHEIM), PH D (MUNICH)
ASSOCIATE PROFESSOR GERMAN
GERMAN DEPT, 3666 MCTAVISH

SCHUTZ, ALBERT J, DR
BA (LOYOLA), DDS (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 4695 SHERBROOKE ST W
32 COURTNEY DR, MONTREAL WEST QUE 488-2187

SCHWARTZ, ALAN PETER, MR
BSC (MCGILL)
DEPT OF METEOROLOGY, BURNSIDE HALL
5162 TRANS ISLAND, MONTREAL QUE

SCHWARTZ, ARTHUR M, DR
B A (MCGILL), M D C M (QUEEN S U)
F R C P
DEMONSTRATOR SENIOR DEPARTMENT OF PSYCHIATRY
QUEEN ELIZABETH HOSPITAL
6770 LEGARE AVE, MONTREAL 249 QUE 735-3375

SCHWARTZ, SAUL, PROF 392-5138
B A (ST CATHARINE S COLL), LL B (CAMBRIDGE),
LL M (HARVARD LAW)
ASSISTANT PROFESSOR FACULTY OF LAW
OLD CHANCELLOR DAY HALL, 3644 PEEL STREET
3440 PEEL ST, APT 16, MONTREAL 112 QUE

SCHWARZ, GASTON, DR
B A (SYRACUSE), M D (OTTAWA)
LECTURER MCGILL-R V H SURGERY CLINIC
ROYAL VICTORIA HOSPITAL
2250 GUY ST APT 1108, MONTREAL QUE 931-5462

SCHWELLNUS, JURGEN E G, PROF 392-5703
BSC (WITWATERSRAND), M SC (QU), PHD (QUEENS)
PROFESSOR DEPT OF MINING ENGINEERING
APPLIED GEOPHYSICS, MCCONNELL ENG BLDG
1153 DE BOUGAINVILLE ST, ST BRUNO QUE 653-3336

SCHWERDTFEGER, HANNA, MRS 392-4814
STAATS EXAM (BONN)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4360 CORONATION AVE, MONTREAL QUE 489-3020

SCHWERDTFEGER, HANS, PROF 392-4818
PHD (BONN(GERMANY)), PHD (BONN)
FRSC
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
4360 CORONATION AVE, MONTREAL QUE 489-3020

SCIPIO, DEBORAH, MRS 392-5108
FACULTY OF GRAD STUDIES, DAWSON HALL
40 MELBOURNE AVE, MONTREAL 304 QUE 737-5038

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SCOTT, HENRY J, PROF
B A (BISHOPS), MD CM (MCG), DIPSUR (MCG)
F A C S, F R C S (C)
PROFESSOR DEPARTMENT OF SURGERY
JEWISH GENERAL HOSPITAL, 3550 COTE DES NEIGES

SCOTT, HUGH M, DR 181-525
MD (QUEENS), MA (MICHIGAN STATE)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
OF MEDICAL EDUCATION
DIRECTOR OF MEDICAL EDUCATION
UNIVERSITY CLINIC R V H, ROOM 14 4 MAIN,
ROYAL VICTORIA HOSPITAL
3045 GLENCOE AVE, MONTREAL 301 QUE 731-7208

SCOTT, MARIANNE F, MISS 392-5060
B A (MCGILL)
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SCOTT, STEPHEN A, PROF 392-5367
BA (MCGILL), BCL (MCGILL), DPHIL OXON (OXFORD)
ME
ASSOCIATE PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
3033 SHERBROOKE ST W, APT 906 WESTMOUNT 215 QU, 933-4576

SCOTT, VIRGINIA A, PROF 392-8823
BS (PURDUE), M S (IND), ED S (INDIANA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
1270 HERRON RD, VILLA 216, DORVAL QUE 636-1454

SCRIVER, CHARLES ROBERT, DR 937-8511
BA (MCGILL), MD (MCGILL)
ASSOCIATE PROFESSOR BIOLOGY
PROFESSOR DEPT OF PEDIATRICS
BIOLOGY, STEWART BIOLOGY BLDG
232 STRATHEARN AVE, MONTREAL 263 QUE

SCULLY, PETER D, DR 873-2522
BA (LOYOLA), MD (MCGILL)
QMA/QPA
LECTURER DEPARTMENT OF PSYCHIATRY
DOUGLAS HOSPITAL
80 WOLSELEY N, MONTREAL 263 QUE 873-2522

SEAFORTH, GLORIA L, MISS 392-5101
FACULTY OF LAW, CHANCELLOR DAY HALL,
3644 PEEL STREET
5520 VICTORIA AVENUE, APT 9 MONTREAL 247 QUE 738-4685

SEARLES, WILLIAM E, PROF 392-8826
B SC (SIR GEORGE WILLIAMS),
M SC (NEW HAMPSHIRE)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
4831 LUCERNE AVE, PIERREFONDS QUE 684-3890

SEARS, JOHN MAURICE, MR 392-4387
SUPERVISOR POWER HOUSE
PHYSICAL PLANT, 840 MCGREGOR
174 VERCHERES ST, GREENFIELD PARK QUE 672-5745

SEDLEZKY, BENJAMIN, DR
B SC (MCG), D D S (MCG)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 4141 SHERBROOKE STE 515,
WESTMOUNT 215 QUE
1879 KENILWORTH RD, MONTREAL QUE

SEDLEZKY, ISADORE, DR
M D (MCGILL)
C P S Q
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
DIAG RAD JWSH GEN HOSP, 3775 COTE STE CATHERINE
MONTREAL 249 QUE
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BA (MCGILL)
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SEELY, JOHN F, DR 392-4377
BA (MCGILL), MD (MCGILL)
F R C P C
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXP MED, RM 20 4 MAIN, R V H
3425 ROSEDALE AVE, MONTREAL 262 QUE 481-1290

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B SC (MCGILL), PH D (OXFORD)
ASSISTANT PROFESSOR PSYCHOLOGY
3500 MOUNTAIN ST, APT 26, MONTREAL QUE

SEKELJ, PAUL, PROF 392-8089
DIP ING (TEC HSCHL KARLSRUHE),
DOCTOR ING (TEC HSCHL KARLSRUHE)
APS, CPS
ASSOCIATE PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SC BLDG
3534 GREY AVE, N D G, MONTREAL QUE

SELBY, DAVID ADRIAN, PROF 392-5173
B ENG (MCGILL), M ENG (MCGILL)

MEIC, MASCE ENG
ASSISTANT PROFESSOR DEPT OF CIVIL ENG
ASSISTANT PROFESSOR SURVEY SUMMER SCHOOL
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
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L M C C, C R C P, C S P Q
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SENECAL, PIERRE, MR
B A (LOYOLA), M D C M (PARIS), D P H (PARIS)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
5300 COTE DES NEIGES RD, MONTREAL QUE

SENIOR, HEREWARD, PROF 392-5188
BA (MCGILL), M A (MCG), PH D (MCGILL)
PROFESSOR HISTORY
HISTORY DEPT, STEPHEN LEACOCK BLDG
2043 VENDOME, MONTREAL QUE

SESHADRI, VANAMAMALAI, PROF 392-5240
BA(HONS) (MADRAS), M A (LOYOLA MADRAS),
PHD (OKLAHOMA STATE)
PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
5714 LOCKWOOD AVE, COTE ST LUC QUE 487-4624

SEYMOUR, KATHLEEN LORRAINE, MISS 392-4817
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
287 2ND AVE, VERDUN QUE 769-5084

SEYMOUR, ROBERT J, DR 937-6011
MDCM (QUEEN S), F A C O G (USA)
ASSISTANT PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBST & GYN MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
4625 TRENHOLME AVE, MONTREAL 262 QUE

SHAMY, FRANK E, DR
B SC (MCG), D D S (MCG),
M SC (UNIVERSITE DE MONTREAL)
VISITING LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND, MONTREAL QUE
1414 DRUMMOND ST, MONTREAL 107 QUE 849-5731

SHANKS, JOHN A, DR
B A (QUEENS), MD CM (MCGILL)
FRCPS(C)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
2162 SHERBROOKE ST W, APT 1, MONTREAL 109 QUE

SHANTZ, HERMIONE, PROF
B A (MICHIGAN STATE), M A (MICHIGAN STATE),
PH D (MICHIGAN STATE)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH
3500 MOUNTAIN ST, MONTREAL 109 QUE 392-8874

SHANTZ, PAULINE, MRS 392-4729
ATHLETICS, 475 PINE AVE WEST
12016 GRENET ST, MONTREAL 390 PQ

SHAPIRO, DAVID S, DR
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
STRATHCONA DENT BLDG
36 GRANVILLE RD, HAMPSTEAD QUE 737-5845

SHAPIRO, ELIZABETH, MRS 392-4657
B SC (MCGILL)
HEAD DEMONSTRATOR BIOLOGY
STEWART BIOL BLDG
345 LANSDOWNE AVE, MONTREAL 215 QUE

SHAPIRO, LORNE, DR 181-1808
BA (MCGILL), MD (MCGILL)
FRCP (C), FACP
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
MED & CLINICAL MED, 2 MAIN R V H
345 LANSDOWNE AVE, MONTREAL 215 QUE 842-1251

SHAPIRO, MARVIN M, PROF 674-1592
BA (U OF TORONTO), MA (TOR),
PH D (U OF TORONTO)
C A P, A A P T
ASSISTANT PROFESSOR PHYSICS
PHYSICS DEPT, MAGNET LABORATORY,
151 PARC IND LONGUEUIL
1975 CLINTON AVE, MONTREAL 251 QUE

SHAPIRO, STANLEY J, DR 392-5877
BA (HARVARD), M B A (PENN),
PHD (U OF PENNSYLVANIA)
PROFESSOR FACULTY OF MANAGEMENT
ASSOCIATE DEAN FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
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SHARP, ROBERT T, PROF 392-8046
B SC (MCG), M SC (MCG), PH D (MCG)
PROFESSOR PHYSICS
THEORETICAL PHYS GRP, PHYSICAL SCI CENTRE
591 GRAND COTE, ROSEMERE QUE 625-6452

SHARPE, JILL, MISS 392-5742
PSYCHOLOGY DEPT, STEWART BIO BLDG,
1205 MCGREGOR ST
430 PRINCE ARTHUR, APT 14, MONTREAL QUEBEC

SHARPE, PATRICIA, MISS 392-8234
B SC (EXETER)
DEPT OF METEOROLOGY, BURNSIDE HALL
3524 HUTCHISON ST APT 39, MONTREAL 130 QUE
288-4874

SHAW, CAROL E, MISS 181-1771
B SC (MCG), M SC (MCG)
MICROBIOLOGY & IMM, PATH INST
3620 LORNE CRESCENT, APT 309 MONTREAL QUE
844-5908

SHAW, ETHEL C, PROF 392-5033
BSCN (ALBERTA UOF), MSC (SIMMONS COLLEGE)
R N
ASSISTANT PROFESSOR SCHOOL FOR GRAD NURSES
3506 UNIVERSITY ST
292 13TH AVE, RICHELIEU, ROUVILLE COUNTY QUE

SHAW, JAMES E, DR 392-4242
B A (NORTH TEXAS STATE),
M A (NORTH TEXAS STATE), PH D (OKLAHOMA)
POST DOCTOR FELLOW DEPARTMENT OF BIOCHEMISTRY
DEMONSTRATOR SENIOR DEPARTMENT OF BIOCHEMISTRY
DEPARTMENT OF BIOCHEMIST, MCINTYRE MED SCIENCE
5272 O BRYAN AVE, MONTREAL 265, QUEBEC

SHEEHAN, KATHLEEN ELLEN, MISS 392-4370
BLDGS & GRDS, MAINTENANCE
2065 CLIFTON, APT 3, N D G MONTREAL QUE

SHEERAN, CATHIE, MISS 392-5119
VOCATIONAL GUIDANCE CENT, 522 PINE AVE
1360 GOHIER STREET, MONTREAL 381 QUEBEC
744-5464

SHEHABY, NABIL, PROF 392-5198
BA (ALEXANDRIA), PHD (LONDON)
ASSISTANT PROFESSOR
INSTITUTE OF ISLAMIC STUDIES
INST OF ISLAMIC STUDIES, STEPHEN LEACOCK BLDG
3620 LORNE CRESCENT, APT 603, MONTREAL QUE

SHEINER, NATHAN M, DR
BSC (MCGILL), MDCM (MCGILL)
F R C S(C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
EXP SURG JWSH GEN HOSP, 3775 COTE STE CATHERINE
MONTREAL 249 QUE

645 LANSDOWNE AVE, WESTMOUNT QUE 342-1434
SHELDON, HUNTINGTON, DR 181-541
B A (MCGILL), MD (JOHNS HOPKINS)
PROFESSOR DEPT OF PATHOLOGY(TEACH)
PROFESSOR PATHOLOGY SERVICE
PATHOLOGY SERVICE, 3775 UNIVERSITY
2862 HILL PARK CIRCLE, MONTREAL 109 QUE 933-6613

SHELDON, MARGARET J, MRS 453-6580
COMPUTING CENTRE, MACDONALD COLLEGE 800, QUE
57 TUNSTALL AVE, SENNEVILLE QUE 453-4325

SHEPPARD, BARBARA, MRS 392-5728
BA (LONDON)
LECTURER CTR FRENCH 2ND LANG
DIRECTOR CTR FRENCH 2ND LANG
INSTRUCTOR CLASSICS
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SHEPPARD, PEGGY ANN, MISS 392-5298
B ED (MCG), B A (S G W U)
ASST TO DIRECTOR ADMISSIONS OFFICE
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1844 FAYOLLE AVE, VERDUN 204 QUE 365-3162

SHERIDAN, CHARLES A, DR
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ROYAL VICTORIA HOSPITAL
1960 LAIRD BLVD, TOWN OF MOUNT ROYAL QUE

SHERRICK, HEATHER, MRS 392-5479
B A (ACADIA)
INTERVIEWOR PERSONNEL DEPARTMENT
ADMINISTRATION BLDG
4974 FULTON ST, MONTREAL 248 QUE 737-7725

SHERWIN, ALLAN LEONARD, DR 845-6781
BSC (MCGILL), M D (MCGILL), PHD (MCGILL)
F R C P (C)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
431 DUFFERIN RD, HAMPSTEAD QUE 484-7478

SHESTOFF, LUDMILLA, MISS 392-4610
RUSSIAN, 3487 PEEL ST
2217 HARVARD AVE, MONTREAL QUE 488-8434

SHEVELL, MELVIN, DR
B SC (MCGILL), D D S (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, 6000 COTE DES NEIGES,
MONTREAL 249 QUE
265 DUFFERIN RD, HAMPSTEAD 254 QUE 737-2231

SHIBATA, HENRY, DR 181-1770
B SC (HIROSHIMA), MSC (MCGILL)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
476 BEVERLEY AVE, TOWN OF MOUNT ROYAL,
MONTREAL 304 QUE 735-3911

SHIMO, GEORGE, MR
ASSISTANT PROFESSOR DEPT OF OTOLARYNGOLOGY
OTOLARYNGOLOGY, ROYAL VICTORIA HOSPITAL
3545 COTE DES NEIGES, STE 70, MONTREAL QUE

SHINE, JOSEPH F, MR 844-2940
B ENG (DUBLIN)
SYSTEMS CO-ORDINATOR MANAGEMENT SYSTEMS
F CYRIL JAMES ADMIN BLDG
1100 MCGREGOR AVE, APT 820, MONTREAL 112 QUE

SHINER, EDWARD V, PROF 392-5042
B A (SIR GEO WMS), B S W (MCG), M S W (MCG)
ED D (COL)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
7 WILTON RD, POINTE CLAIRE QUE 697-6821

SHINGLER, JOHN, PROF 392-5236
B A (RHODES), M A (YALE)
ASSISTANT PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
80 BAGG ST, MONTREAL QUE 288-2055

SHIPLEY, VIVIAN, MRS 453-6580
BSC HEC (MCGILL), MA (MCGILL)
ASS T PROFESSOR SCHOOL OF FOOD SCIENCE
FOOD SCIENCE, MACDONALD COLLEGE 800, QUE
51 MTE ST MARIE, STE ANNE DE BELLEVUE QUE 453-8421

SHIPLEY, WILLIAM C, MR 453-6580
B SC (MCGILL)
SECRT BURSAR MACDONALD COLLEGE ADMINISTRATN
ADMINISTRATION, MACDONALD COLLEGE 800, QUEBEC
15 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-8421

SHIZGAL, DAVID T, DR
DDS (MCGILL)
MCDSPQ
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1396 ST CATHERINE W,
MONTREAL 107 QUE
C/O 1396 ST CATHERINE W 866-9067

SHIZGAL, HARRY, DR 842-1251
B SC (MCGILL), M D (MCGILL)
RCPSC
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
SURGERY, R V H
25 PLACE DEPHOURE, DOLLARD DES ORMEAUX QUE 684-0279

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SHIZGAL, MORTIMER, DR 392-4923
B SC (MCG), D D S (MCG)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1414 DRUMMOND, MONTREAL QUE

SHORE, BRUCE M, PROF 392-8803
BSC (MCGILL), TEACH DIP (MCGILL), M A (MCGILL)
PHD (CALGARY)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
ASSISTANT PROFESSOR
CENTRE FOR LEARNING & DEVELOP
CTRE LEARN AND DEVELOP,
MACDONALD CHEMISTRY BLDG
350 COTE VERTU RD, APT 415, MONTREAL 380 QUE 336-5208

SHRAGOVITCH, I, DR
MD (MCGILL)
F R C S(C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURG JWSH GEN HOSP, 3775 COTE STE CATHERINE,
MONTREAL 249 QUE
4845 JEAN BRILLANT, MONTREAL 247 QUE

SHUGAR, J L, DR
BSC (MCGILL), MDCM (MCGILL)
LECTURER DEPARTMENT OF SURGERY
SURG JWSH GEN HOSP, 3775 COTE STE CATHERINE,
MONTREAL 249 QUE
4530 MADISON AVE, MONTREAL 261 QUE 735-3455

SHULMAN, AMY, MRS 392-4356
BA (S G W U), MSW (MCGILL)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
42 FINCHLEY RD, HAMPSTEAD QUE 482-3179

SHULMAN, LAWRENCE, PROF 392-4356
BS (CITY COLLEGE N Y C), MSW (COLUMBIA)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
102 KIRKLAND BLVD, KIRKLAND QUE 697-7396

SHULMAN, ROBERT, DR
M D (GENEVA), M SC (MCG), B SC (MCG)
FRCP (C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
5733 EDGEMORE, MONTREAL 269 QUE 484-8162

SHULTZ, THOMAS R, PROF 392-4712
BA (UNIV OF MINNESOTA), PH D (YALE UNIV)
ASSISTANT PROFESSOR PSYCHOLOGY
STEWART BIO BLDG
3463 STE FAMILLE ST, APT 218, MONTREAL 845-8354

SHUSTER, D N, DR

FRCP C, CSPQ, LMCC
BSC (MCGILL), MD CM (MCGILL)
DEMONSTRATOR DIAGNOSTIC RADIOLOGY
ST MARYS HOSPITAL
4995 FULLUM ST, MONTREAL 178 P QUE

SHUSTER, JOSEPH, DR
BSC (MCGILL), PH D (CALIFORNIA), MD (ALBERTA)
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
M R C FELLOW UNIVERSITY CLINIC M G H
PROFESSIONAL ASSOC DEPARTMENT OF BIOCHEMISTRY
MCGILL UNIV MED CLIN, MTL GEN HOSP 1650 CEDAR,
MONTREAL 109 QUE
7 GRANVILLE RD, HAMPSTEAD 254 QUE

SIBBALD, KATHLEEN M, MISS 392-4618
B A HON (CAMBRIDGE), M A (LIVERPOOL),
M A (CAMBRIDGE)
LECTURER SPANISH
SPANISH LANG & LITT, 3491 PEEL
4900 COTE ST LUC RD, APT 1006, MONTREAL 248 QUE

SIBOO, RUSSELL, PROF 181-1771
BA (MCMASTER), M SC (TOR), PHD (MCGILL)
ASSOCIATE PROFESSOR
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOLOGY ▮ IMMUNOLOG, PATHOLOGICAL INST
65 HILLSIDE AVE, POINTE-CLAIRE 710 QUE 695-6129

SIDEROFF, STEPHEN I, DR 392-4607
B A (STATE UNIV OF N Y), PH D (U OF MIAMI)
PROFESSIONAL ASSOC PSYCHOLOGY
PSYCHOLOGY, STEWART BIOLOGY BLDG
3450 DRUMMOND, MONTREAL QUE

SIDKY, SAMIHA, MRS 392-5366
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334-9176

SIGMAN, HARVEY H, DR
BA (MCGILL), MDCM (MCGILL)
F R CS(C), F A C S, C D
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURG JWSH GEN HOSP, 3775 COTE STE CATHERINE,
MONTREAL 249 QUE
656 LANSDOWNE AVE, WESTMOUNT QUE 739-0443

SIGOUIN, CHRISTIANE, MISS 392-5331
VICE PRINCIPAL-ACAD, F CYRIL JAMES BLDG
3965 PREFONTAINE ST, MONTREAL 401 QUE 526-8396

SILVA, JESUS, DR
B A CC (MADRID), M D (MADRID)
LECTURER PHYSICAL▮OCCUPATIONAL THERAPY
PHYS MED MTL GEN HOSP, DAVIS HOUSE,
3654 DRUMMOND STREET
216 GABLES COURT, BEACONSFIELD QUE

SILVER, DANIEL, DR 181- 243
BSC (MCGILL), M D (MCG), DIP PSYCH (MCGILL)
F R C P S C
LECTURER RESIDENCY PROGRAMME
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, JEWISH GENERAL HOSPITAL,
3755 COTE STE CATHERINE
536 ROSLYN AVE, MONTREAL QUE 932-0483

SILVER, SHARIN, MISS 392-4761
DEPT OF EPIDEM & HEALTH, NEW PATHOLOGY
2430 GOYER ST, MONTREAL 251 QUE

SILVERTHORNE, MICHAEL J, PROF 392-5222
BA (OXFORD), M A (OXON), B LITT (OXFORD)
ASSISTANT PROFESSOR CLASSICS
CLASSICS DEPT, STEPHEN LEACOCK BLDG
4650 TRENHOLME AVE, MONTREAL 262 QUE

SILVESTER, ELIZABETH VERA, MRS 392-5002
BA (MCGILL), BLS (MCGILL), MLS (MCGILL)
PROF LIB
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SILVESTER, PETER PEET, PROF 392-5394
BS (CARNEGIE), M A SC (TOR), PH D (MCGILL)
PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
418 PINE AVE W, APT 36 MONTREAL QUE 288-6769

SIMKIN, DAVID J, PROF 392-3090
B S (CHIC), PH D (PENN ST)
ASSISTANT PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
4814 MELROSE AVE, MONTREAL 253 QUE 481-2306

SIMON, LUCIE, MRS 392-3001
ANAESTHESIA RES DEPT, MCINTYRE MED SCI CENTRE
3170 BARCLAY ST, APT 5, MONTREAL 251 QUE

SIMON, MARC, PROF 392-4992
BS (TEMPLE UNIVERSITY), MA (JOHNS HOPKINS),
PHD (NEW YORK UNIVERSITY)
ASSISTANT PROFESSOR ENGLISH
ARTS BLDG
900 SHERBROOKE ST W, APT 31, MONTREAL 110 QUE

SIMON, SHARON J, MRS 392-4977
ART HISTORY, ARTS BLDG
363 PRINCE EDWARD AVENUE, OTTERBURN PARK,
QUEBEC 467-7816

SIMONS, DOROTHY IRENE, DR 392-5447
BSC (MCGILL), MDCM (MCGILL)
FMOQ
HEALTH SERVICE-MCGILL, 517 PINE AVE W
1400 PINE AVE W, APT 1405 MONTREAL 109 PQ
845-1620

SIMONS, JUDITH EDITH, MRS
B ARTS (MCGILL)
SCHOOL OF NURSING, 3506 UNIVERSITY ST
1445 PAINTER CIRCLE, APT 102, MONTREAL 336-2682

SIMONS, SIEBERT P, DR
M D (AMSTERDAM), DIPL PSYCHIATRY (MCGILL)
LECTURER DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, QUEEN ELIZABETH HOSP
Q E H PSYCHIATRY DEPT, 2100 MARLOWE ST,
MONTREAL QUE

SIMPSON, DIANNE C, MISS 392-5030
SCHOOL FOR GRAD NURSES, 3506 UNIVERSITY ST
3484 DUROCHER, APT 207, MONTREAL QUE 842-6706

SIMPSON, JANET, MISS 392-5358
OFFICE OF SECRETARY, TO BOARD OF GOVERNORS,
F CYRIL JAMES ADMIN BLDG
3566 UNIVERSITY ST APT 1, MONTREAL QUE 288-6628

SINCLAIR, RONALD, PROF 392-4667
BSC (QUEEN S BELFAST), PH D (QUEEN S BELFAST)
ASSOCIATE PROFESSOR BIOLOGY
ZOOLOGY DEPT, STEWART BIOL BLDG
R R 1 VAUDREUIL QUE 236-7276

SINDELL, PETER, PROF 392-8066
B A (HARVARD), MA (STANFORD)
ASSISTANT PROFESSOR ANTHROPOLOGY
STEPHEN LEACOCK BLDG
529 WISEMAN AVE, MONTREAL 154 QUE

SING, MARIE DONNA, MRS 392-8849
EDUCATION LIBRARY, 3700 MCTAVISH
4982 QUEEN MARY RD, QUEEN COURT APARTMENT 46,
MONTREAL 248 QUEBEC 342-0661

SINGER, CAROL, MISS 392-5371
MATHEMATICS, BURNSIDE HALL
85 CHARNWOOD ROAD, BEAUREPAIRE QUEBEC 697-6393

SIROTA, DOROTHY, PROF 392-5045
DIP SW (TOR)
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
1175 MARLATT AVE, ST LAURENT QUE 332-4272

SISE, JOLANTA MARIA, MS
PHILOSOPHY, 772 SHERBROOKE ST W
4718 VICTORIA AVE, MONTREAL QUE

SISODIYA, RAMBHAI G, DR 392-5929
B SC (LONDON), M SC (CALGARY), PH D (CALGARY)
A M I C E, M E I C
VISITING ASST PROF DEPT OF CIVIL ENG
MACDONALD ENG BLDG
121 DE LA BARRE APT 423, LONGUEUIL, QUEBEC
670-7657

SITTMANN, KURT, PROF 392-4576
BSC(AGRIC) (PRETORIA), M SC (CALIF),

PHD (CALIFORNIA (DAVIS))
ASSOCIATE PROFESSOR BIOLOGY
GENETICS DEPT, STEWART BIOLOGY BLDG
201 COROT RIVE, APT 715 NUN S ISLAND,
MONTREAL 201 QUE 761-2694

SKELTON, ELIZABETH A, MISS 392-5307
LIC EN LET (SORBONNE),
DIP D ETUDES SUP (SORBONNE),
DIP D ETUDES CZECH (PRAGUE)
CHIEF INFM OFFICER MCGILL REPORTER
F CYRIL JAMES BLDG
2151 LINCOLN AVE APT 12A, MONTREAL 108 933-8792

SKINNER, GEORGE BERNARD, DR
B SC (MCG), M D C M (MCG)
F R C P C
ASSOCIATE PROFESSOR DIAGNOSTIC RADIOLOGY
R V H
85 SUNNYSIDE AVE, WESTMOUNT QUE

SKINNER, VERNA KIRSTINE, MRS 392-5484
ADMINISTRATION, F.D. ADAMS BLDG
39 STAYNER AVE, WESTMOUNT 215 QUE 933-2830

SKLAR, SUSAN, MRS
BA (MCGILL)
MCLENNAN LIB/CATALOGUING, MCLENNAN LIB
2755 KENT AVE APT 201, MONTREAL 251 QUE

SKORYNA, STANLEY C, DR 392-4860
OMC
MD (VIENNA), PHD (VIENNA)
CSPQ
DIRECTOR GASTRO INTESTINAL RES LAB
ASSOCIATE PROFESSOR GASTRO INTESTINAL RES LAB
ASSOCIATE PROFESSOR
DEPT OF EXPERIMENTAL SURGERY
DEPT OF EXPERIMENTAL SUR, DONNER BLDG
14 FORDEN AVE, WESTMOUNT QUE 935-3088

SKUCE, DOUGLAS R, MR 842-1251
BSC (MIAMI)
NEURO & NEUROSURGERY, M N I
1575 SUMMERHILL AVE, APT 602 MONTREAL 109 QUE

SLAPCOFF, EDWARD, DR
BSC (MCGILL), DDS (MCGILL)
FRCD(C)
LECTURER FACULTY OF DENTISTRY
6000 COTE DES NEIGES, MONTREAL 249 QUE
6000 COTE DES NEIGES RD, SUITE 410 MONTREAL QUE

SLAVIN, SUZY MARGOT, MISS 392-4922
BA (ANTIOCH), MLS (CASE WESTERN U)
LIBRARIAN MCLENNAN LIBRARY - REFERENCE
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935-1933

SLAYTON, PHILIP WILLIAM, PROF 392-5131
BA(HONS) (MANITOBA), MA (OXFORD), BCL (OXFORD)
ASSISTANT PROFESSOR FACULTY OF LAW
CHANCELLOR DAY HALL
2156 SHERBROOKE W APT 14, MONTREAL 108 QUE

SLOBODIAN, VERONICA, MISS 392-4501
FACULTY OF MUSIC, 555 SHERBROOKE ST. W.
2745 BEDFORD RD, APT 1, MONTREAL 251 QUE

SMITH, ANDRE, DR 392-4670
B COM (MONTREAL), B A (CLLG STE MARIE),
M A (MCGILL), DOCTORAT-3E CYCLE (PARIS)
ASSISTANT PROFESSOR FRENCH
FRENCH, 3460 MCTAVISH, PETERSON HALL
1100 MCGREGOR ST, APT 1017, MONTREAL 112 QUE
849-5574

SMITH, BRUCE, MR 453-6580
B SC AGR (MCGILL), MA (MCGILL)
SPECIAL LECTURER DEPARTMENT OF AGRIC ECONOMICS
MACDONALD COLLEGE 800 PQ
3505B PEEL ST, MONTREAL 112 PQ

SMITH, CHARLES EDWARD, DR
DDS (MCGILL)
ASSISTANT RESIDENCE DIRECTOR OF GARDENER HALL
RESEARCH ASSISTANT DEPARTMENT OF ANATOMY
ANATOMY DEPT, STRATHCONA MED BLDG
3905 UNIVERSITY ST, MONTREAL QUE

SMITH, CLIFTON CONWAY, DR 342-2320
B A (OHIO ST), M D C M (MCG), DIP PSYCH (MCG)
L M C C, F A P A, R C P S (C)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, QUEEN MARY VETERANS HOSP
637 COTE ST CATHERINE RD, MONTREAL QUE 935-5751

SMITH, DAVID C, PROF 392-8816
BED (MCGILL), M A (MCG), PHD (LONDON)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN OF EDUCATION IN SOCIAL SCIENCES
FACULTY OF EDUCATION, 3700 MCTAVISH ST
505 OAKVILLE RD, DOLLARD DES ORMEAUX 960, QUE

SMITH, GORDON W, PROF 392-5709
B ENG (MCGILL), M ENG (MCG), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
155 PERCIVAL AVE, MONTREAL 263 QUE 484-7259

SMITH, HELENE, MISS
B A (SIR GEORGE WILLIAMS), M A (MCGILL)
FRENCH INFORMATION O MCGILL REPORTER
522 ST LOUIS, DORVAL QUE

SMITH, J GRAHAM, PROF 392-5212
BA (NOTTINGHAM), M A (OHIO STATE),
PHD (OHIO STATE UNIV)
ASSOCIATE PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
660 WESTLUKE AVE, MONTREAL 267 QUE 484-8713

SMITH, JAMES J, MR
LECTURER INST OF INTERNATIONAL AIR LAW
3644 PEEL STREET, MONTREAL 112 QUE
146 BISLEY ST, BEACONSFIELD QUE

SMITH, JEAN ELIZABETH, MISS 181-523
BA (ACADIA)
ADM ASSISTANT III UNIVERSITY CLINIC R V H
UNIV CLINIC MEDICINE, R V H
1100 MCGREGOR ST, APT 516 MONTREAL 112 QUE

SMITH, JOAN RITA, MS 392-8870
FACULTY OF EDUCATION, 3700 MCTAVISH ST
2376 MELROSE AVE, APT 8, MONTREAL 261 PQ

SMITH, KATHRYN W, MISS 392-4881
B A (SGWU)
ANATOMY, STRATHCONA MEDICAL BLDG
500 PINE AVE W, APT 1102, MONTREAL 130 QUE

SMITH, L PAUL, DR
B A (PARIS), B A (MONTREAL), M D (MONTREAL)
F R C S (C)
LECTURER DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAECOLOGY, WOMEN S PAVILION,
ROYAL VICTORIA HOSPITAL
385 SIMCOE AVE, MONTREAL 304 QUE 937-6329

SMITH, MARY R, DR 181-1637
BA (U W O), MD (U OF OTTAWA)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
QU ELIZABETH HOSP & RVH
4530 COTE DES NEIGES RD, APT 106,
MONTREAL QUEBEC 733-5495

SMITH, MIRIAM, MRS
TEACH CERT (MACDONALD)
FACULTY OF ARTS, STUDENT AFFAIRS, DAWSON HALL
375 MARLATT STREET, MONTREAL 378 QUEBEC

SMITH, RONALD MENZIES, MR
CIRCULATION MCLENNAN LUB
2332 BEACONSFIELD AVE, MONTREAL 261 QUE
487-1322

SMITH, SYDNEY A, DR 392-5420
MDCM (MCGILL), DIP INTMED (MCGILL)
FRCP(C) CRCP(C)
HEALTH SERVICE-MCGILL, 517 PINE AVE W
48 ARLINGTON AVE, WESTMOUNT QUE 933-9992

SMITH, WILMA C, MS
PATHOLOGY, PATHOLOGICAL INSTITUTE
1486 J F KENNEDY, LASALLE QUE 365-8017

SMYTH, MICHAEL THOMAS, MR 392-5073
MAIL ROOM, CIRCULATION RESERVES,
3459 MCTAVISH ST MTL

6950 VICTORIA ST. APT 106, MONTREAL QUE
733-9360

SMYTHE, ELSIE, MRS 453-6580
ENTOMOLOGY, MACDONALD COLLEGE 800, QUE
223 CHAMPLAIN AVE, PINCOURT QUE 453-2589

SNIDER, GEORGE LOUIS, PROF 392-5226
BA (BOSTON COLLEGE), A M (HARV),
PHD (HARVARD UNIVERSITY)
ASSISTANT PROFESSOR CLASSICS
CLASSICS DEPT, STEPHEN LEACOCK BLDG
1122 LAIRD BLVD, APT 22, MONTREAL 305 QUE

SODERSTROM, LEE A, PROF 392-5234
B A (CALIF), PH D (CALIF)
ASSISTANT PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
495 PRINCE ARTHUR W, APT 7, MONTREAL 130 QUE

SOKOLYK, DOROTHY, PROF 392-8804
B A (S G W U), MA (COLUMBIA U)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH ST
230 BALLANTYNE AVE N, MONTREAL W 263 QUE
486-6532

SOLIN, C D, PROF 392-8280
C M
BA (MCGILL), M A (MCGILL), PHD (TORONTO)
DEPT OF MATHEMATICS, BURNSIDE HALL
6702 CHAREST RD, CITY OF COTE ST LUC QUE
489-5848

SOLOMON, C M, DR
BA (MCGILL), DDS (MCGILL)
FRCD(C)
LECTURER FACULTY OF DENTISTRY
DENTISTRY SUITE 506, 5165 QUEEN MARY RD,
MONTREAL QUE
635 BELMONT AVE, MONTREAL 217 QUE 482-2151

SOLOMON, SAMUEL, DR 181-648
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
PROFESSOR UNIVERSITY CLINIC R V H
RM 26 END LABS 2 MED, R V H
3484 STANLEY ST APT 501, MONTREAL 112 QUE
849-9853

SOLOMON, SHEILA, DR 181-1889
BSC (MCGILL), MD (COLUMBIA)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
EXPERIMENTAL MED, R V H
260 KENASTON AVE, TOWN OF MOUNT ROYAL QUE
738-0261

SOLYMAR, JENO, DR
MD (BUDAPEST)
L M C C, F R C P C
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED AND CLIN MEDICINE, ST MARYS HOSPITAL,
3830 LACOMBE AVE
1212 PINE AVE W, MONTREAL QUE

SOMERS, JACQUELINE, PROF 392-4613
BSC (LONDON), PHD (LONDON)
ASSISTANT PROFESSOR BIOLOGY
GENETICS DEPT, STEWART BIOLOGY BLDG
1565 PINE AVE W, MONTREAL 109 QUE 937-3439

SOULARD, PAULINE, MRS 392-4537
STAFF NURSE HEALTH SERVICE - MCGILL
UNIV HEALTH SERVICE, 517 PINE AVE WST
301 BLVD DEGUIRE, APT 1243 ST LAURENT QUE
336-3756

SOURKES, THEODORE L, PROF 181-1609
BSC (MCGILL), M SC (MACD), PHD (CORNELL)
PROFESSOR DEPARTMENT OF PSYCHIATRY
ASSOCIATE DEAN DEPARTMENT OF PSYCHIATRY
DEPARTMENT OF PSYCHIATRY,
ALLAN MEMORIAL INSTITUTE
4645 MONTCLAIR AVE, MONTREAL 262 QUE

SOUTHIN, JOHN L, PROF 392-4584
BSC(HONS) (QUEENS), M A (CALIF),
PHD (CALIFORNIA L A)
ASSOCIATE PROFESSOR BIOLOGY
RESIDENCES DIRECTOR OF MCCONNELL HALL
GENETICS DEPT, STEWART BIOLOGY BLDG
MCCONNELL HALL, 3905 UNIVERSITY ST,
MONTREAL QUE 392-4252

SPATARO, CARMEN, MR 392-8867
FACULTY OF EDUCATION, EDUCATION BLDG
5717 HUTCHISON ST, MONTREAL 152 QUE 276-4628

SPECTOR, MALCOLM, PROF 392-5172
B A (NORTHWESTERN), M A (NORTHWESTERN),
PH D (NORTHWESTERN)
ASSISTANT PROFESSOR SOCIOLOGY
STEPHEN LEACOCK BLDG
5100 HUTCHISON APT 3, OUTREMONT 153 QUE
277-6257

SPEIRS, CAROL ALICE, MRS
BA (SIR GEORGE WILLIAMS), MSW (MCGILL)
LECTURER SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
365 STANSTEAD AVE, MONTREAL 305 QUE 342-3858

SPENCE, JOHN ANDREW, PROF 392-5834
BA (DUBLIN), M SC (WATERLOO), PH D (WATERLOO)
ASSISTANT PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOL BLDG
7380 DE ROQUANCOURT, GLENMOUNT,
MONTREAL 301 QUE 733-7939

SPENCER, JOHN HEDLEY, PROF 392-4256
BSC (ST ANDREWS), PHD (MCGILL)
CPCQ
PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY DEPT, MCINTYRE MED SC BLDG
218 WESTMINSTER AVE N, MONTREAL WEST 263 QUE
488-6039

SPITZER, FRANK, PROF 392-5412
B SC(ENG) (LONDON), PH D (LONDON)
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLDG
6525 WILDERTON AVE, MONTREAL 251 QUE 342-4916

SPOOV, OLGA, MRS 392-5067
DDS (HARBIN CHINA)
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SQUARR, UTE INGRID, MISS 392-5086
CATALOGUING, MCLENNAN LIBRARY
98 ST LOUIS AVE, BEAUREPAIRE QUE 697-6665

SRIVASTAVA, VISHNU, C
PROFESSIONAL ASSOC PHYSICS
PHYSICS, MAGNET LABORATORY, LONGUEUIL
225 TAGGART ST APT 205, GREENFIELD PARK, QUEBEC

ST MARTIN, MARIE HELENE, MRS 453-6580
BLDGS GRDS MTCE (MAC), MACDONALD COLLEGE 800,
QUEBEC
194 ST ANNE ST, ST ANNE DE BELLEVUE QUE
453-6927

ST MARTIN, MARY T, MRS 453-6580
DEAN S OFFICE, MACDONALD COLLEGE 800, QUEBEC
28 LAKEVIEW RD, BAIE D URFE QUE 453-2889

ST PIERRE, EVA, MRS 392-4934
CTR FOR CONTINUING EDUCA, STRATHCONA HALL
1707 LOYSEAU, ST BRUNO, QUEBEC

ST PIERRE, LEON E, DR 392-4451
B SC HONS (U OF ALBERTA),
PH D (U OF NOTRE DAME)
PROFESSOR CHEMISTRY
DEPARTMENT CHAIRMAN CHEMISTRY
CHEMISTRY DEPT, OTTO MAASS CHEM BLDG
140 UNION BLVD, ST LAMBERT QUE 672-6945

STACEY, COOPER H, DR
BSC (MCGILL), MD (MCGILL)
FACP, FRCP(C)
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
900 SHERBROOKE ST W, STE 10 MONTREAL QUE
520 ARGYLE AVE, WESTMOUNT QUE 935-9377

STACHENKO, J M, DR 937-8511

LICENCE SC (SORBONNE), PH D (MCGILL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
INVST MED MTL CHLD HOSP, 2300 TUPPER ST,
MONTREAL 108 QUE
123 NORMANDIE ST, PREVILLE QUE

STACHEWITSCH, A, DR
BA (KONSTANZ), MD (FREIBURG)
FRCP (C)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
96 EASTON AVE, MONTREAL 263 QUE 482-9655

STACHIEWICZ, J W, PROF 392-5474
B ENG (MCG), M ENG (MCG)
C E Q
PROFESSOR DEPT OF MECHANICAL ENGINEERING
DEPARTMENT CHAIRMAN
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
P O BOX 483, STE ADELE QUE 489-2188

STAIRS, DOUGLAS GRANT, PROF
B SC (QUEENS), M SC (HARVARD), PH D (HARVARD)
PROFESSOR PHYSICS
PHYSICS DEPT, RADIATION LABORATORY

STALINSKI, PADDY, MR 392-5150
PHYSICS DEPT, MACDONALD PHYSICS BLDG
438 BROADWAY, ROSEMERE QUE 625-4570

STAM, LUCETTE, MRS 392-4932
FRENCH CANADA STUDIES, PROGRAMME, 3475 PEEL
4850 COTE DES NEIGES RD, APT 2009, MONTREAL QUE

STAMM, JOHN W, DR 392-3017
DDS (ALBERTA), D D P H (TORONTO), MSC (TORONTO)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
DENTISTRY, STRATHCONA DENT BLDG
519 DE GASPE APT 513, ILES DES SOEURS,
MONTREAL 201 QUE 767-8074

STANBURY, MARY G, MISS 392-4581
BIOLOGY DEPT, STEWART BIOLOGY BLDG
1420 PINE AVE W, APT 4 MONTREAL QUE

STANDING, TERESA, MRS 392-5253
OFFICE UNIV PLANNING, F CYRIL JAMES ADMIN BLDG
360 TREMBLAY, LASALLE 650 QUE 363-6535

STANSBURY, EDWARD J, DEAN 392-5076
B A (TORONTO), M A (TOR), PH D (TORONTO)
DEAN FACULTY OF SCIENCE
PROFESSOR PHYSICS
FACULTY OF SCIENCE, ROOM 210, DAWSON HALL
11705 LAVIGNE ST, MONTREAL 390 QUE

STAPLES, PRESTON CLARK, DR
DDS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 12 BROCK AVE, MONTREAL QUE
150 WOLSELEY AVE N, MONTREAL WEST QUE 484-0521

STARCK, CHRISTINA, MRS 392-5061
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STAROSTA, IRENE, MRS 392-4484
B A (MCGILL), M A (MCGILL), PH D (MCGILL)
LECTURER FRENCH
FRENCH LANG & LIT, PETERSON HALL
3922 DE LA PELTRIE, MONTREAL QUE 739-6445

STEARN, COLIN W, PROF 392-5835
B SC (MCMASTER), M S (YALE), PH D (YALE)
FRSC
LOGAN PROF GEOLOGICAL SCIENCES
GEOLOGICAL SCIENCES, F.D. ADAMS BLDG
204 VICTORIA DRIVE, BAIE D URFE QUE 453-2085

STEEDMAN, DAVID W, PROF 392-6763
BA (TORONTO), PHD (YALE)
ASSISTANT PROFESSOR FRENCH
ASSOCIATE DEAN FACULTY OF ARTS
FACULTY OF ARTS, DAWSON HALL
1555 ATHLONE RD, TOWN OF MOUNT ROYAL QUE
731-3159

STEELE, SHIRLEY, PROF
B A (MCMASTER), M S W (MCGILL)
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
WILSON HALL, 3506 UNIVERSITY STREET
144 BROUGHTON RD, MONTREAL WEST QUE 482-4436

STEGGERDA, EVA, MRS 392-5186
ACQUISITIONS, MCLENNAN LIB
230 MELOCHE, ST LAURENT QUE 334-9284

STEIN, JANICE GROSS, PROF 392-5236
BA HONOURS (MCGILL), M A (YALE), PH D (MCGILL)
ASSOCIATE PROF POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
4300 DE MAISONNEUVE WEST, APT 306,
MONTREAL QUEBEC 932-4114

STEIN, MICHAEL BERNARD, PROF 392-5249
BA (MCGILL), M A (PRIN), PHD (PRINCETON)
ASSOCIATE PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
4300 BLVD DE MAISONNEUVE, APT 306,
WESTMOUNT QUE 932-4114

STEIN, SAMUEL, DR 341-6211
B S C (MCGILL), M D (SASK),
PSYCHIATRY DIPL (MCGILL)
C P S Q, R C P S(C)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, JEWISH GENERAL HOSPITAL,
4333 COTE STE CATHERINE
504 FRANCOIS PARK, MONTREAL 201 QUE 769-2918

STEINBERG, BLEMA S, PROF 392-5236
B ARTS (MCGILL), M A (CORN), PHD (MCGILL)
ASSOCIATE PROFESSOR POLITICAL SCIENCE
STEPHEN LEACOCK BLDG
4931 GLENCAIRN AVE, MONTREAL QUE 482-5422

STEINMETZ, NICHOLAS, DR 937-8511
BSC (MCGILL), MPH (U OF MICHIGAN),
MDCM (MCGILL)
APHA CATSPM
ASSISTANT PROFESSOR DEPT OF EPIDEM & HEALTH
PATH INST
305 LAKE AVE, DORVAL QUE 636-4702

STEPPLER, HOWARD A, PROF 453-6580
FAIC
BSC (MANITOBA), MSC (MCGILL), PHD (MCGILL)
PROFESSOR DEPARTMENT OF AGRONOMY
AGRONOMY, MACDONALD COLLEGE 800, QUE
93 CAMBRIDGE RD, BAIE D URFE QUE 453-2606

STERN, DANIELA, MISS 392-5130
PHYSICS DEPT, PHYSICS BLDG
4615 BOURRET AVE, APT 20 MONTREAL 252 PQ
731-0498

STERN, LLOYD G, DR
B A (MCGILL), MDCM (MCGILL)
LECTURER DEPARTMENT OF PSYCHIATRY
600 COTE DES NEIGES RD, JEWISH GENERAL HOSPITAL
95 FINCHLEY ROAD, HAMPSTEAD,
MONTREAL 254 QUEBEC 731-2394

STERN, MURIEL H, PROF 392-4612
B SC (MCGILL), M SC (MCG), PHD (MCGILL)
CPA, EPA
ASSOCIATE PROFESSOR PSYCHOLOGY
STEWART BIOL BLDG
95 FINCHLEY RD, MONTREAL 254 QUE 482-8774

STEVEN, DAVID, PROF 392-4796
B SC (OXFORD), A M (HARV), M A (OXON)
PH D (OXFORD)
PROFESSOR BIOLOGY
DEPT OF ZOOLOGY, STEWART BIOLOGY BLDG
605 WALPOLE AVE, TOWN OF MOUNT ROYAL QUE
737-7994

STEVENS, RENEE, MRS
UNIVERSITY CLINIC, R V H
33 CEDAR AVE, POINTE CLAIRE QUE

STEVENSON, D R, PROF 674-1591
BASC (TORONTO), MSE (UNIV OF MICHIGAN),
MECH E (MASS INST OF TECH), SCD (M I T)
PROFESSOR PHYSICS
PHYSICS, MAGNET LABORATORY
273 STANLEY AVE, ST LAMBERT QUE

STEVENSON, JAMES W, DR 181-1771
MD
PROFESSOR MICROBIOLOGY & IMMUNOLOGY
PROFESSOR DEPT MICROBIOLOGY - IMMUNOLOGY
DEPT MICROBIOLOGY - IMMU.
3775 UNIVERSITY STREET,MONTREAL 112 PQ
4100 OLD ORCHARD AVE, MONTREAL QUE 481-6466

STEVENSON, JOHN S DAWSON, PROF 392-5731
B A (BRIT COLUM), B A SC (UBC),
PH D (MASS INST TECHNOLOG)
FMSA, FGSA, FRSC, FGAC
DAWSON PROF GEOLOGICAL SCIENCES
F.D. ADAMS BLDG
BOX 245, HUDSON HEIGHTS QUE 236-5877

STEVENSON, LOUISE F, MRS 392-5988
B S (U OF WASH), A M (HARVARD)
CURATOR REDPATH MUSEUM
MUSEUMS, REDPATH MUSEUM
RIDGE RD, BOX 245, HUDSON HEIGHTS QUE 236-5877

STEVENSON, MARY, PROF 392-5044
BA (SASKATCHEWAN), D S W (TOR), MSW (MCGILL)
ASSOCIATE PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
789 CAMPBELL ST, GREENFIELD PARK QUE 671-1871

STEVENSON, ROBERT W, PROF 392-4835
BA (MCGILL), B D (MCG), MA (HARVARD)
ASSISTANT PROFESSOR FAC OF RELIGIOUS STUDIES
RELIGIOUS STUDIES, 3520 UNIVERSITY ST
530 MOUNT PLEASANT AVE, MONTREAL 217 QUE
933-8397

STEWART, J FERGUSON, MR 392-8018
BA (QUEENS)
SCH LIAISON OFFCR PUBLICATION SERVICE
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STEWART, P BRIAN, DR
DFC
MB BS (LONDON), MRCP (LONDON)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINICAL MED, R V H
R R 1, ST ANDREWS EAST QUE 697-4760

STEWART, PAMELA D, PROF 392-4593
BA (UNIV OF MONTREAL), MA (MCGILL)
ASSOCIATE PROFESSOR ITALIAN
ASSISTANT DIRECTOR CONT EDUCATION-LANGUAGE SECT
ITALIAN, PETERSON HALL
4502 BLVD LEVESQUE, CHOMEDY QUE

STEWART, ROBIN KENNY, PROF 453-6580
BSC AGRIC (GLASGOW), DOCTORATE (GLASGOW)
ASSOCIATE PROFESSOR DEPARTMENT OF ENTOMOLOGY
ENTOMOLOGY, MACDONALD COLLEGE 800, QUE
72 STAFFORD ROAD, BAIE D'URFE QUE 453-3350

STILLWELL, DOROTHY M, DR 181-1531
B A (SASK), MD (TORONTO), MS (COLORADO)
ASSOCIATE PROFESSOR
PHYSICAL&OCCUPATIONAL THERAPY
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLIN MED, ROYAL VICTORIA HOSPITAL
800 LAKESHORE DRIVE, PHI DORVAL 780 QUE
842-1251

STINSON, FRANGA, PROF 392-8871
BA (SIR GEORGE WILLIAMS), ED D (SYRACUSE)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
CHAIRMAN DEPT OF ELEMENTARY EDUCATION
3700 MCTAVISH ST
3510 MOUNTAIN ST, APT 54, MONTREAL 109 844-6983

STOCEK, HERMINE, MRS 392-4765
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
1100 MCGREGOR ST, APT 615 MONTREAL QUE 845-5870

STOCKS, ELIZABETH, MISS 392-4307
DIP O T (LONDON SCH OF OCC THER)
LECTURER PHYSICAL&OCCUPATIONAL THERAPY
PYS & OCC THERAPY, DAVIS HOUSE
201 COROT DRIVE, APT 414, NUNS ISLAND QUE

STRACHAN, ROBIN H, MR 392-4421
BA (CAMBRIDGE), MA (CAMBRIDGE)
DIRECTOR MCGILL-QUEENS UNIV PRESS
UNIVERSITY PRESS, 3458 REDPATH ST
29 REDPATH PLACE, MONTREAL QUE 844-4148

STRATFORD, JOSEPH G, DR 937-6011
BSC (MCGILL), M SC (MCGILL), MD-CM (MCGILL)
FRCS(C), FACS
PROFESSOR MCGILL-M G H SURGERY CLINIC
NEUROLOGY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
50 SUMMIT CIRCLE, WESTMOUNT QUE 933-4555

STRAUSS, CLARA, MRS 181-592
BA (QUEENS), MA (MCGILL)
CPPQ
LECTURER NEUROPSYCHOLOGY
NEUROPSYCHOLOGY, M N I
546 ROCKLAND AVE, OUTREMONT QUE 272-5838

STRAWCZYNSKI, HANNA, DR
M D (WARSAW)
F R C P C
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 1650 CEDAR AVE,
MONTREAL 109 QUE
5032 PONSARD, MONTREAL QUE

STRIEGLER, THOMAS, MR 392-4393
GLASS BLOWER CHEMISTRY
CHEMISTRY DEPT, OTTO MAASS CHEM BLDG
456 PINE AVE W APT H, MONTREAL 130 QUE 288-1702

STROM OLSEN, JOHN O, PROF 392-4803
BSC (CAMBRIDGE), M A (CANTAB), PH D (CAMBRIDGE)
ASSISTANT PROFESSOR PHYSICS
EATON ELECT RES LAB
443 LANSDOWNE AVE, WESTMOUNT 217 QUE

STUART-PAYETTE, MARIELLA, MRS 392-4741
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY
135 PLACE COTE VERTU, APT 409, ST LAURENT QUE

STUDHAM, RICHARD LYNN, PROF 392-8857
N D D (SUNDERLAND DURHAM),
ASSOCIATE (ROYAL ACAD DENMARK)
C S G A
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
4594 EARNSCLIFFE, MONTREAL 248 QUE

STUTMAN, MARVIN, DR
B SC (MCGILL), D D S (MCG), MSCDENT (BOSTON)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 4695 SHERBROOKE ST W,
MONTREAL 108 QUE
4141 SHERBROOKE ST W, MONTREAL QUE

STYAN, GEORGE P H, PROF 392-8205
BSC (BIRMINGHAM), M A (COLUMBIA),
PHD (COLUMBIA)
ASSISTANT PROFESSOR MATHEMATICS
BURNSIDE HALL
511 ABELARD APT 111, NUNS' ISLAND VERDUN,
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SULLIVAN, RICHARD F, PROF
B A (BOSTON U), M A (CALIFORNIA),
PH D (CALIFORNIA)
PROFESSOR FACULTY OF LAW
3644 PEEL STREET
280 SILVERTHORN AVE, TORONTO ONTARIO M6N 3K6

SULLIVAN, THOMAS J, PROF
B A (U OF M), MD CM (MCG)
F R C P C
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED AND CLINIC MEDICINE, MTL GENERAL HOSPITAL
1538 SHERBROOKE ST W, STE 522 MONTREAL 109 QUE,

SUMMERS WISENTHAL, CAROLE, MRS 392-4985
ENGLISH, ARTS BLDG
5417 DUQUETTE AVE, MONTREAL QUE

SURCHIN, HYMAN H, DR
BSC (MCGILL), MDCM (MCGILL)

FRCP(C)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
2300 TUPPER ST, MONTREAL 108 QUE
3550 COTE DES NEIGES RD, APT 550, MONTREAL QUE

SURKIS, ALLEN, DR
B A (SIR GEORGE WILLIAMS), B PH (MONTREAL), M A (MONTREAL), PH D (PS) (UNIV DE MONTREAL)
CPPQ
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY
6254 DEACON ROAD, MONTREAL 251 QUEBEC

SUSSMAN, DAVID, PROF 392-8271
BA (MCGILL), M A (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
2865 DARLINGTON PLACE, APT 33 MONTREAL QUE 738-2497

SUTHERLAND, J BARTHELEMY, DR 488-2311
B SC (MCG), MD CM (MCG)
FRCP(C), LMCC
ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, QUEEN ELIZABETH HOSPITAL
450 ELM AVE, MONTREAL 217 QUE

SUVIN, DARKO R, PROF 392-4993
DIPL ENG (ZAGREB), B A (ZAGREB), PH D (ZAGREB)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
3435 DRUMMOND, APT 11B, MONTREAL 109 QUE

SWETLAND, H. R., MR.
LECTURER FACULTY OF DENTISTRY
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SWIFT, JOANNE, MISS 392-8053
BSC (MARIANOPOLIS COLLEGE), MSC (MCGILL)
INSTRUCTOR DEPT OF EPIDEM & HEALTH
3775 UNIVERSITY ST
1370 SCARBORO ROAD, MONTREAL 304 PQ 731-5638

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F R C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
QU ELIZ HOSP & R V H
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TABAH, EDWARD J, DR
B SC (MCG), MD CM (MCG), DIPL (AM BD SURG)
FRCS
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY DEPT, R V H
1538 SHERBROOKE ST W, SUITE 711, MONTREAL QUE

TAEUSCH, WILLIAM H, DR 392-4520
A B (HARVARD), M D (W RESERVE OHIO)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
MCINTYRE MED BLDG
522 DE GASPE, NUNS ISLAND QUE 769-7817

TAGUCHI, YOSHINORI, DR
BSC (MCGILL), PHD (MCGILL)
F R C S (C)
ASSISTANT PROFESSOR MCGILL-R V H SURGERY CLINIC
UROLOGY 6 WEST, R V H
5652 QUEEN MARY RD, MONTREAL QUE

TAKATS, BELA, MR 392-5463
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
352 BEACONSFIELD BLVD, BEACONSFIELD QUE 695-2034

TALI, RONALD H, PROF 392-8834
BA (UNIV OF MICHIGAN), A M (U MICH), PHD (UNIV OF MICHIGAN)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
3450 DRUMMOND ST, APT 129, MONTREAL 109 QUE 845-2437

TALLEY, WILLIAM, PROF 392-8882
A B (KENTUCKY CHRISTIAN), BA (MOREHEAD STATE), MA (OHIO STATE), PH D (OHIO STATE UNIV)
APA, PDK
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
202 BERLIOZ APT 211, NUNS ISLAND,
MONTREAL 201 QUE 769-3382

TAM, KWOK KUEN, PROF 392-4810
BASC (UNIVERSITY TORONTO), M A (TOR), PH D (TORONTO)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
2 MALCOLM CIRCLE, DOLLARD DES ORMEAUX QUE 683-7169

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TANAKA, YUKIO, PROF 392-4867
B SC PHARM (OSAKA), PH D (BRITISH COLUMBIA)
ASSISTANT PROFESSOR GASTRO INTESTINAL RES LAB
EXP SURG, DONNER BLDG
5464 CLANRANALD AVE, MONTREAL 248 QUE

TANENBAUM, HOWARD, DR
B SC (MCGILL), M D C M (MCGILL)
F R C S(C)
ASSISTANT PROFESSOR DEPT OF OPHTHALMOLOGY
OPHTHAL JWSH GEN HOSP, 3775 COTE STE CATHERINE, MONTREAL 249 QUE
3755 COTE ST CATHERINE R, MONTREAL QUE 342-2985

TANNENBAUM, RUTH, MRS 392-5050
B ARTS (BISHOPS), DIP SOC WRK (MCGILL), MSW (MCGILL)
ASSISTANT PROFESSOR SCHOOL OF SOCIAL WORK
3506 UNIVERSITY ST
250 CLARKE AVE, P 6, WESTMOUNT 215 QUE

TANNER, CHARLES, PROF 453-6580
BSC (PURDUE), M SC (MCGILL), PH D (MCGILL)
SEVERAL
PROFESSOR DEPT OF PARASITOLOGY
PARASITOLOGY, MACDONALD COLLEGE 800, QUE
699 VICTORIA DRIVE, BAIE D URFE PQ 453-8845

TAPER, CHARLES D, PROF 453-6580
B S A (U B C), MSA (UBC), PH D (MANITOBA)
CAPQ
ASSOCIATE PROFESSOR DEPT OF HORTICULTURE
DEPT OF HORTICULTURE, MACDONALD COLLEGE 800, QUE
BOX 56, MACDONALD COLLEGE 800 PQ 453-2496

TATE, ROWENA, MRS 392-4796
MARINE SCIENCES, 772 SHERBROOKE ST W
605 WALPOLE AVE, TMR MONTREAL 305 QUE 737-7994

TATLOW, WILLIAM F, DR
MB BS (LONDON), MD (LONDON)
M R C P (LOND), F R C P (C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
MED & CLIN MED MGH, 1650 CEDAR AVE, MONTREAL 109 QUE
R R 1, HUDSON QUE

TAURINS, ALFRED, PROF 392-5792
ENG CHEM (LATVIA RIGA), DR CHEM (LATVIA RIGA)
FCIC, FRSC
MACDON PROF CHEMISTRY
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1870 GRAY ST, ST BRUNO QUE

TAWRELL, MELITA, MRS 392-5263
ACCOUNTING DEPT, ADMINISTRATION BLDG
3474 HUTCHISON ST, APT 1004, MONTREAL 130 QUE

TAYLOR, CHARLES, DR
PROFESSOR POLITICAL SCIENCE
344 METCALFE AVE, MONTREAL 215 QUE

TAYLOR, DONALD, PROF 392-4698
BA (WESTERN), M A (WESTERN), PH D (WESTERN)
ASSISTANT PROFESSOR PSYCHOLOGY
STEWART BIOLOGY BLDG
81 RONALD DR, MONTREAL 263 QUE 487-6590

TAYLOR, GRAHAM C, DR 181-451
B SC (MCG), M D C M (MCG)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
DEPT OF PSYCHIATRY, A M I
1915 LAIRD BLVD, TOWN OF MT ROYAL,
MONTREAL 304 QUE 7

TAYLOR, JOHN C, PROF 392-3411
B SC (ACADIA), M A (QU), PH D (MCM)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
1223 ST ESPRIT APT 2, SHERBROOKE QUE

TAYLOR, LAUGHLIN B, MR 181-1865
BSC (ALBERTA), BED (ALTA), MSC (MCGILL)
LECTURER NEUROLOGY & NEUROSURGERY
M.N.H. STAFF NEUROLOGY & NEUROSURGERY
NEUROPSYCHOLOGY, 3801 UNIVERSITY ST
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B SC (MCGILL), M SC (MCG), PH D (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
6280 WESTBURY ST, MONTREAL 252 QUE 731-6259

TELFORD, WILLIAM M, PROF 392-5431
BSC (MCGILL), M SC (MCGILL), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MINING ENGINEERING
MINING ENGINEERING, APPLIED GEOPHYSICS,
OLD CHEMISTRY BLDG
3427 HARVARD AVE, MONTREAL QUE 486-5418

TELNER, PAUL P, DR 842-1251
M D (U OF M)
F R C P(C), F A C P
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE, ROYAL VICTORIA HOSPITAL
5845 COTE DES NEIGES RD, MONTREAL 249 QUE

TEMBECK, ROBERT EDWARD, PROF 392-5942
BA (AMER UNIV CAIRO), MS (SOUTH DAKOTA),
PHD (MINNESOTA UNIV)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
3838 MARLOWE AVE, MONTREAL 260 QUE

TEMPLETON, JOHN, DR
M B (QUEEN S BELFAST)
F R C S
LECTURER DEPARTMENT OF SURGERY
QUEEN ELIZABETH HOSPITAL
611 BELMONT AVE, WESTMOUNT 217 QUE 481-9972

TEN PAS, ANDREW, DR 181-1511
MD (RYKSUNIVERSITEIT), MD (UTRECHT HOLLAND)
FRCP(C)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE CLINICAL MED, HAEMATOLOGY 2 MAIN RVH
52 SUMMIT CIRCLE, WESTMOUNT 217 QUE 932-0142

TENBRINK HO, CAROLE L, MRS 392-5028
B SN (UNIV OF MICHIGAN),
MS N (UNIV OF MICHIGAN)
PSYCHIATRIC NURS R N/QUE
LECTURER SCHOOL FOR GRAD NURSES
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931-3998

TENCER, LOUIS, MR 392-8227
SESSIONAL LECTURER JEWISH STUDIES PROGRAM
3511 PEEL ST
5771 HUDSON AVE, COTE ST LUC 268 QUE 488-1729

TENENHOUSE, ALAN M, DR 392-5747
BSC (MCGILL), MDCM (MCGILL), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARM & THERAPEUTICS, MCINTYRE MED SCI CTR
4314 MONTROSE AVE, WESTMOUNT QUE 981-1529

TENNENHOUSE, KAREN, MISS
B SC (MANITOBA)
LECTURER MATHEMATICS
RESEARCH ASSISTANT MATHEMATICS
MATHEMATICS, BURNSIDE HALL
APT. 28, 456 PINE WEST, MONTREAL 130 PQ

TERRASSE, JEAN, PROF 392-4449
LICENCE (BRUXELLES), CAND PHIL (BRUXELLES),
AGRE ENS MOYEN SUPER (BRUXELLES)
DOCTORATE (BRUXELLES)
ASSOCIATE PROFESSOR FRENCH
FRENCH LANG AND LIT, PETERSON HALL
370 BERTRAND ST, ROSEMERE QUE 622-3876

TERROUX, KATHLEEN, DR 392-4223
B A (MCGILL), M SC (MCGILL), PH D (MCGILL)
DEMONSTRATOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY, MCINTYRE MED BLDG
1509 SHERBROOKE ST W, APT 66 MONTREAL QUE
932-8580

TERROUX, R F RICHARD, DR 392-5130
B A (LOYOLA), B SC (MCG), M SC (MCG)
PH D (CANTAB)
RUTHERFORD MUSEUM, PHYSICS BLDG
1509 SHERBROOKE ST W, APT 66 MONTREAL 109 QUE
932-8580

TESSIER, LISE, MISS 932-3883
B A (LAVAL), MSW (LAVAL)
DEPT OF EPIDEM & HEALTH, 1110 PINE AVE W
5582 DECELLES AVE, APT 6, MONTREAL QUE 737-9467

TESSLER, IRVING, DR 937-8511
B SC (MCG), M D C M (MCG)
AACC, MCMA
LECTURER DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER,
MONTREAL 108 QUE
6280 MACDONALD AVE, HAMPSTEAD 254 QUE

TETREAULT, MARTHA C, MRS 392-8843
FACULTY OF EDUCATION, 3700 MCTAVISH ST
265 LOISELLE PLACE, PINCOURT QUE 453-8398

THELMO, WILLIAM L, DR 181-1781
MD (SANTO TOMAS UNIV), M D (SANTO TOMAS UNIV)
FACP
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
ASSISTANT PROFESSOR PATHOLOGY SERVICE
PATHOLOGY SERVICE, 3775 UNIVERSITY ST
4580 QUEEN MARY RD, APT 106, MONTREAL QUE

THEN, ROSEMARY F M, MISS 392-5963
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
3563 UNIVERSITY ST, APT 4, MONTREAL 112 QUE

THIBAULT, DORILA, MRS
JANITRESS 1000-02 MCGREGOR ST
BUILDINGS & GROUNDS, 1000 MCGREGOR
1000 MCGREGOR ST, MONTREAL QUE 849-5439

THIBAULT, JEAN PAUL, MR 467-4010
B A (U DE M), B SC BIOL (U DE M)
ASSIST DIR REDPATH MUSEUM
REDPATH MUSEUM
66 CHAMPLAIN, MONT ST HILAIRE, CO ROUVILLE QUE
467-0563

THOMAS, DUNCAN, MR 392-8059
B A (HAVERFORD COLLEGE),
M SC (STANFORD UNIVERSITY)
LECTURER DEPT OF EPIDEM & HEALTH
DEPT OF EPIDEM & HEALTH, 3775 UNIVERSITY,
ROOM 314

3448 PEEL ST, APT 16, MONTREAL QUE 842-7058

THOMAS, GEOFFREY FITZ-ROY, MR 181-693
B COM (S G W U)
MONTREAL NEUROLOGICAL HOSPITAL
DIRECTOR OF FINANCE NEUROLOGY & NEUROSURGERY ADMINISTRATION, M N H
7 PARK AVE, CHATEAUGUAY CENTRE QUE 691-2057

THOMAS, PAUL, MR 392-5819
CIRCULATION DEPT, MCLENNAN LIBRARY
3050 PROVOST, MONTREAL QUE

THOMPSON, A LLOYD, PROF 392-4200
BA (BISHOPS), PHD (MCGILL)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
63 BALLANTYNE AVE N, MONTREAL QUE 484-2023

THOMPSON, ALAN G, DR 937-6011
MD (MCG)
PROFESSOR MCGILL-M G H SURGERY CLINIC
DIRECTOR MCGILL-M G H SURGERY CLINIC
SURGERY MTL GEN HOSP, 1650 CEDAR AVE RM 633, MONTREAL 109 QUE
492 ARGYLE, MONTREAL 217 QUE 933-5674

THOMPSON, CHRISTOPHER J, MR 181-1841
B SC (HON) (OTAGO), M SC (OTAGO)
LECTURER NEUROLOGY & NEUROSURGERY
NEURO & N SURGERY, M N I
11870 LEVIGNE, MONTREAL 390 QUE 331-7422

THOMPSON, HAZEL, MRS 392-5999
FAC. OF MANAGEMENT, BRONFMAN BLDG
3460 DUROCHER ST, APT 304, MONTREAL 130 QUE 845-8089

THOMPSON, JOHN H, MR 392-5190
BA HONS (WINNIPEG), M A (MANITOBA)
LECTURER HISTORY
HISTORY, STEPHEN LEACOCK BLDG
3503 UNIVERSITY ST, MONTREAL QUE

THOMPSON, JOHN, DR 453-6580
B SC (LEEDS UNIVERSITY),
PH D (LEEDS UNIVERSITY)
PROFESSIONAL ASSOC DEPARTMENT OF ENTOMOLOGY MICROBIOLOGY, MACDONALD COLLEGE 800, QUE
P O BOX 303, MACDONALD COLLEGE 800, QUE

THOMPSON, WILLIAM T, PROF 392-5850
B A SC (UN OF TORONTO), PH D (UN OF TORONTO)
ASSISTANT PROFESSOR DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
14422 LYONS ST, PIERREFONDS QUE 626-8708

THOMSON, DAVID M P, PROF 937-6011
MD (U W ONT)
CPSPQ, FRCPS
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
ASSISTANT PROFESSOR UNIVERSITY CLINIC M G H
FACULTY OF MEDICINE, MONTREAL GENERAL HOSP
3415 RIDGEWOOD, APT 107 MONTREAL PQ 733-3154

THOMSON, HARVEY A, PROF 392-8203
B ARTS (MCGILL), M A (CASE WESTERN U),
PH D (CASE WESTERN UNIV)
ASSC PROF FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
4848 MADISON AVE, MONTREAL 253 QUE

THOMSON, MARGARET A, MRS 392-5348
SR EX SECT TO PRINC. ADMINISTRATION
ROOM 508
668 DUBLIN, STONE RIDGE ESTATES 467-4471

THORPE, W DAVID, PROF 392-5116
B A (CAMBRIDGE), M A (CAMBRIDGE)
DIRECTOR COMPUTING CENTRE
ASSOCIATE PROFESSOR COMPUTING CENTRE
COMPUTING CENTRE, BURNSIDE HALL
388 LAKESHORE RD, BEACONSFIELD QUE 697-6502

THURLBECK, WILLIAM, DR 392-8047
BS (UNIV OF CAPE TOWN),
MB CHB (UNIV OF CAPE TOWN)
PROFESSOR PATHOLOGY SERVICE
PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY SERVICE, PATHOLOGICAL INST
602 VICTORIA AVE, MONTREAL 217 QUE 482-5549

TICHOUX, ALAIN, MR 392-4490
B COMM (PARIS), M A (MCGILL), PH D (MCGILL)
LECTURER FRENCH
FRENCH LANG & LIT, PETERSON HALL
849 ABBES PRIMEAU, BOUCHERVILLE QUE

TIDMARSH, WILLIAM W, DR
BSC (DALHOUSIE-KINGS), MDCM (MCGILL)
LECTURER DEPT OF PEDIATRICS
PED MTL CHILDRENS HOSP, 2300 TUPPER ST, MONTREAL QUE

TINMOUTH, ALAN H, DR
FRCP
B ENG (NS TECHNICAL COLLEGE), MD CM (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MONTREAL GENERAL HOS, MONTREAL 109 PQ
4860 HINGSTON AVE, MONTREAL 253 P QUE

TOMASZUK, PAOLA VALERI, PROF 392-5219
BA (TURIN), PHD (TURIN)
ASSOCIATE PROFESSOR CLASSICS
CLASSICS DEPT, STEPHEN LEACOCK BLDG
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TONKS, DAVID B, PROF 937-6011
BA (BRITISH COLUMBIA), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MEDICINE & CLIN MED
MED MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
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LECTURER DEPT OF OBSTETRICS & GYNAECOLY
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MD (BUDAPEST)
LECTURER DIAGNOSTIC RADIOLOGY
R V H
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B A (LOYOLA), M A SC (U B C), M D C M (MCGILL)
LECTURER SCHOOL OF COMPUTING SCIENCE
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TOWNSEND, ROBERT, DR
BSC (MCGILL), MDCM (MCGILL), M C H (LIVERPOOL)
FRCS(EDIN), FRCS(C), LMCC
ASSOCIATE PROFESSOR DEPARTMENT OF SURGERY
SURGERY, R V H
1538 SHERBROOKE ST W, STE 320 MONTREAL QUE

TOWNSEND, S R, DR 937-6011
BACH ARTS (MCGILL), M D C M (MCGILL)
FACP, F R C P (C)
PROFESSOR DEPT OF MEDICINE & CLIN MED
MED MTL GEN HOSP, 1650 CEDAR AVE,

MONTREAL 109 QUE

HAEMATOLOGY DEPT RM 7129, 1650 CEDAR AVE, MONTREAL QUE

TRACHEWSKY, DANIEL, DR 842-1481

BSC (MCGILL), M SC (MCGILL), PHD (MCGILL)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, CLINICAL RESEARCH INST
4579 HINGSTON AVE, MONTREAL 261 QUE

TRAN, TIN TIN, MRS 392-5099

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BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOL SC BLDG
750 44TH AVE, LACHINE 610 QUE 637-8053

TREMBLAY, GILLES, DR 181-1781

BA (MONTREAL), MD (MONTREAL)
PROFESSOR PATHOLOGY SERVICE
PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATHOLOGY SERVICE, 3775 UNIVERSITY ST, MONTREAL 112 QUE
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ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARMACOLOGY DEPT, MCINTYRE MED SCI CTR
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BA (TORONTO), PHD (YALE)
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BENG (MCGILL), PHD (CALIF INST TECH)
ASSISTANT PROFESSOR PHYSICS
PHYSICS DEPT, FOSTER RADIATION LAB
6052 SOMERLED ST, MONTREAL QUE 498-6142

TROP, DAVY, DR 181-587

B A (COLL ST MICHEL BRUSSELS), M D (GENT U BELGIUM)
ASSOCIATE PROFESSOR NEUROLOGY & NEUROSURGERY
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
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ASSOCIATE PROFESSOR PSYCHOLOGY
PSYCHOLOGY, STEWART BIOLOGY BLDG
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TURCOT, GEORGES, DR

B A (MONTREAL), M D (MONTREAL)
CMA, APQ
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY, STE ANN S HOSPITAL, STE ANNE DE BELLEVUE
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ASSOCIATE PROFESSOR DEPT OF CIVIL ENG
MACDONALD ENGR BLDG
427 LANSDOWNE AVE, WESTMOUNT QUE 931-7482

TURNER, JAMES E, PROF 392-4296

B SC (TORONTO), PH D (BIRMINGHAM)
ASSISTANT PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
3620 LORNE CR APT 918, MONTREAL 130 QUE 844-4398

TWEEDIE, FREDERICK J, DR 844-3122

BA (UNIV OF N B), MDCM (MCGILL)
F R C S
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
WOMEN S PAVILION, 1ST FLOOR R V H
5 DE CASSON RD, MONTREAL 217 QUE 737-2284

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B SC (WALES), PH D (WALES)
ASSOCIATE PROFESSOR BIOLOGY
GENETICS DEPT, STEWART BIOL BLDG
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UDD, JOHN E, PROF 392-5429

BENG(MIN) (MCGILL), M ENG (MCG), PHD (MCGILL)
ASSOCIATE PROFESSOR DEPT OF MINING ENGINEERING
FACULTY ADVISOR DEPT OF MINING ENGINEERING
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UGALDE CUESTA, VICTORIANO, PROF 392-4615

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ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
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USHER, ROBERT HOWARD, DR 181-334
B SC (MCGILL), MD (MCGILL)
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYN, R V H
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UTRACKI, LECHOSLAW A, DR 392-5458
ENG (LODZ), M ENG (LODZ), PHD (LODZ)
DOTZENT (LODZ)
ACS, CIC
DEPT OF CHEMICAL ENG, MCCONNELL ENG BLDG
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VACAFLOR, LUIS, DR
M D (ARGENTINA), DIP PSYCHIAT (PERU)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY DOUGLAS HOSP, 6875 LASALLE BLVD, VERDUN 204 QUE
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PHD (BERKELEY U OF CAL)
ASSISTANT PROFESSOR POLITICAL SCIENCE
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ASSOCIATE DIRECTOR COMPUTING CENTRE
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B A (COLLEGE ST LAURENT), D D S (MONTREAL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
1726 DUMONT ST, ST BRUNO QUE
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DIP (BRUSSELS), LIC (LOUVAIN), MA (STANFORD)
ASSISTANT PROFESSOR
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M D (BUDAPEST)
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CLINICAL MEDICINE, ROYAL VICTORIA HOSPITAL, HAEMATOLOGY 2 MAIN

VAS, STEPHEN I, PROF 181-1771
MD (PAZMANY PETER), PH D (PAZMANY PETER)
DEPARTMENT CHAIRMAN MICROBIOLOGY ▮ IMMUNOLOGY
PROFESSOR DEPT MICROBIOLOGY - IMMUNOLOGY
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PHD (UNIV OF WISCONSIN)
ASSOCIATE PROFESSOR ECONOMICS
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VERDERY, RICHARD N, PROF 392-5198
BA HISTORY (YALE UNIVERSITY), M A (PRINC),
PHD (PRINCETON UNIV)
ASSOCIATE PROFESSOR
INSTITUTE OF ISLAMIC STUDIES
LEACOCK BUILDING
65 HICKSON AVE, ST LAMBERT QUE 672-7603

VERMES, ROBERT, PROF 392-5240
MSC (HEBREW UNIVERSITY), PHD (WISCONSIN)
ASSOCIATE PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
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VIALLET, ANDRE, DR
MD (U MONTREAL)
F R C P (C), F A C P
ASSOCIATE PROFESSOR UNIVERSITY CLINIC R V H
EXPERIMENTAL MEDICINE, HOPITAL ST LUC
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B COM (MCG), M A (PRINC), PH D (PRINC)
ASSOCIATE PROFESSOR ECONOMICS
ECONOMICS DEPT, STEPHEN LEACOCK BLDG
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VICKERY, VERNON R, PROF 453-6580
B SC (AGR) (MCGILL), M SC (MCG), PH D (MCGILL)
ASSOCIATE PROFESSOR DEPARTMENT OF ENTOMOLOGY
CURATOR LYMAN ENTOMOLOGICAL MUSEUM
DEPARTMENT OF ENTOMOLOGY, MACDONALD COLLEGE 800 QUE
102 SOUVENIR DRIVE, PINCOURT QUE 453-8985

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PSYCHOLOGY DEPT, STEWART BIOL SC BLDG, 1205 MCGREGOR
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VIGNEAULT, ROBERT, PROF 392-4484
LIC EN LETTRES (LAVAL), LIC EN PHIL (MTL),
LIC EN THEOL (MTL), DOCTORAT (UNIV D AIX)
ASSOCIATE PROFESSOR FRENCH
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M D (U OF SANTO TOMAS)
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
1012 ROGER PILON, DOLLARD DES ORMEAUX QUE

VISWANATHAN, MURI A, PROF 453-6580
BSC (AG) (MADRAS), DOCTORATE (MCGILL)
CPS, QSPP
ASSISTANT PROFESSOR
DEPARTMENT OF PLANT PATHOLOGY
PLANT PATHOLOGY, MACDONALD COLLEGE
30B STE ANNE ST, STE ANNE DE BELLEVUE QUE
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B A (OXON), PH D (FLORENCE)
ASSOCIATE PROFESSOR CLASSICS
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VLASIC, IVAN A, PROF 392-5268
BCL (ZAGREB YUGOSLAVIA), LLM (MCG), LL M (YALE)
JSD (YALE)
PROFESSOR INST OF INTERNATIONAL AIR LAW
DIRECTOR INST AIR & SPACE LAW
INST OF INTERNATIONAL AI, 3644 PEEL ST
669 WARWICK DRIVE, BAIE D URFE QUE 453-6043

VOGEL, ROBERT, DEAN 392-5016
B A (SIR G WMS), M A (MCG), PH D (MCG)
PROFESSOR FACULTY OF ARTS
DEAN FACULTY OF ARTS
FACULTY OF ARTS, ROOM 207
4240 GRAND BLVD, MONTREAL 261 QUE 481-4721

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ASSOCIATE PROFESSOR SOCIOLOGY
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DR PHIL (BERLIN)
ASSOCIATE PROFESSOR METEOROLOGY
DEPT OF METEOROLOGY, BURNSIDE HALL
5725 COTE ST LUC RD, APT 504, MONTREAL QUE

WADDELL, CATHERINE, PROF
B A (S G W U)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FAC OF ED, EDUCATION BLDG, 3700 MCTAVISH
10670 ST URBAIN ST, MONTREAL 357 QUE

WADDELL, ROBERT W, DR 842-1251
B SC (MCGILL), M D (QUEEN S)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
QUEEN MARY VET S HOSP, 4565 QUEEN MARY RD,
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772 SHERBROOKE ST.W.
4280 DE MAISONNEUVE BLVD, APT 3,
WESTMOUNT 215 QUE 935-1538

WALKER, MARGARET C, PROF 392-8837
BPHE (TORONTO), MA (STATE UNIV OF IOWA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
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C A H P E R, CAPE
ASSISTANT PROFESSOR FACULTY OF EDUCATION
CURRIE GYM, 475 PINE AVE W
102 LAKESHORE ROAD, POINTE CLAIRE QUE 697-5428

WALL, JENNIFER A T, PROF 392-8892
TCH CE (LOND U)
A M S C
ASSISTANT PROFESSOR FACULTY OF EDUCATION
EDUCATION DEPT, 3700 MCTAVISH
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B A (TORONTO), M A (TOR), PH D (TORONTO)
PROFESSOR PHYSICS
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WALLERSTEIN, IMMANUEL, PROF 392-4752
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PROFESSOR SOCIOLOGY
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WALSH, DAVID, PROF 392-4783
B SC ENG (CORK), M SC (OTT),
PHYSICS (NOTTINGHAM)
ASSISTANT PROFESSOR PHYSICS
PHYSICS DEPT, EATON LABORATORY
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WALSH, IRENE, MRS 392-5228
ECONOMICS DEPT, STEPHEN LEACOCK BLDG
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WANG, NAI-SAN, DR 181-1781
M D (TAIWAN), M SC (MCGILL), PH D (MCGILL)
FRCP C
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
DEPT OF PATHOLOGY(TEACH), 3775 UNIVERSITY ST
40 DOBIE AVE, MONTREAL QUE 739-1683

WANG, PEGGY P C, MRS 392-4280
BA (TAIWAN UNIV)
SESSIONAL LECTURER EAST ASIAN LANGUAGES
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
EAST ASIAN LANGUAGES, 3511 PEEL
1309 SERRE ST, LASALLE QUE 363-2157

WARD, ALFRED J, MR 392-5993
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
5183 MARQUETTE ST, MONTREAL 177 PQ 521-1280

WARD, JOAN, PROF 392-5053
MCSP (LOND)
ASSISTANT PROFESSOR
PHYSICAL/OCCUPATIONAL THERAPY
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WARKENTIN, BENNO P, PROF 453-6580
BSA (UNIV BRITISH COLUMB),
MS (WASH STATE COLL), PHD (CORNELL UNIV)
PROFESSOR DEPARTMENT OF SOIL SCIENCE
SOIL SCIENCE, MACDONALD COLLEGE 800, QUE
394 CHURCH ST, BEACONSFIELD QUE 697-7658

WARNER, H ALFRED, DR
BA (NEW BRUNSWICK), MD (MCGILL)
FRCP, CSPQ
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
105 SUNNYSIDE AVE, WESTMOUNT 217 QUE 481-0598

WARSHAWSKY, HERSHEY, PROF 392-4886
BSC (SIR GEORGE WILLIAMS), M S C (MCG),
PHD (MCGILL UNIVERSITY)
ASSOCIATE PROFESSOR DEPARTMENT OF ANATOMY
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PHD BIOCHE (WISCONSIN(MADISON))
ASSOCIATE PROFESSOR DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY DEPT, MCINTYRE MED SCI CTR
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PH D (LONDON)
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CHANCELLOR DAY HALL
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ATD (LEEDS)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, ART EDUCATION,
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BA (MCGILL), MED (BOSTON UNIVERSITY)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH
39 LAKESHORE RD, BEACONSFIELD QUE

WATTERS, GORDON V, DR 937-8511
BACH ARTS (U OF MINNESOTA), M D (MANITOBA)
ASSOC PROFESSOR PEDIATRICS & NEUROLOGY
ASSOCIATE PROFESSOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER ST
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219 WOLSELEY AVE, MONTREAL WEST 263 QUE
481-9744

WEBB, JAMES L, PROF
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
ST MARY S HOSPITAL, 3830 LACOMBE AVE,
MONTREAL 249 QUE 488-9344

WEBER, MARTIN E, PROF 392-5434
BSE (PRINCETON), SCD (MIT)
ASSOCIATE PROFESSOR DEPT OF CHEMICAL ENG
MCCONNELL ENGR BLDG
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BA (QUEENS COLLEGE N Y), M A (CORN),
PHD (CORNELL)
ASSOCIATE PROFESSOR LINGUISTICS
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3465 STANLEY ST, MONTREAL QUE

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BA (MCGILL), M A (MCG), PHD (MCGILL)
PROFESSOR CTR FOR CONTINUING EDUCATION
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BSC (TORONTO), M SC (MCG), PHD (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY
PHYSIOLOGY DEPT, MCINTYRE MED SCI CTR
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WEE, ROBERTO LEE, DR
M D (UNIV PHIL), M D (PHILIPPINES)
F R C P
LECTURER DIAGNOSTIC RADIOLOGY
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MONTREAL 201 QUE 7

WEEMS, BENJAMIN F, PROF 392-4989
AB (PRINCETON), A M (COL), PHD (COLUMBIA)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
R O 2, WESTFORD VERMONT 05494, USA

WEES, WILLIAM C, PROF 392-4995
BA (NORTHWESTERN), M A (ROCHESTER),
DOCTORATE (NORTHWESTERN)
ASSOCIATE PROFESSOR ENGLISH
ENGLISH, ARTS BLDG
4600 BEACONSFIELD AVE, MONTREAL 261 QUEBEC
392-4995

WEIGENSBERG, BERNARD I, PROF 181-1781
BSC (MCGILL), M SC (MCG), PHD (MCGILL)
ASSISTANT PROFESSOR DEPT OF PATHOLOGY(TEACH)
PATH INST
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ASSOCIATE PROFESSOR FACULTY OF DENTISTRY
DENTISTRY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
57 WOLSELEY AVE NORTH, MONTREAL WEST 263 QUE
937-6011

WEINMANN, MONIQUE, MRS 392-4484
BACC (NANTES), LIC EN LETT (NANTES),
DOCT (PARIS-NANTERRE)
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BA (JERUSALEM), MA (JERUSALEM),
PHD (KINGS CAMBRIDGE)
ASSISTANT PROFESSOR HISTORY
LEACOCK BLDG
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WEINSTEIN, PAUL R, DR
B SC (MCGILL)
LECTURER FACULTY OF DENTISTRY
5025 SHERBROOKE W, WESTMOUNT QUE
221 DUFFERIN RD, HAMPSTEAD QUE

WEISS, GABRIELLE, DR
BSC (MCGILL), MD (MCGILL)

C P A
ASSOCIATE PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCHIATRY M C H, 2300 TUPPER ST
28 THURLOW ROAD, MONTREAL 254 QUE 937-8511

WEISS, ROBERT, MR 392-5838
GEOLOGICAL SCIENCES, F D ADAMS BLDG
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WELCH, JOHN, MR 392-4421
BA (KNOX COLLEGE)
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WELDON, JOHN C, PROF 392-5212
BA (MCGILL), PHD (MCGILL)
PROFESSOR ECONOMICS
ECONOMICS
ECONOMICS, LEACOCK BUILDING
155 BALLANTYNE SOUTH, MONTREAL WEST QUE
484-6866

WELDON, PETER R, DR 392-4203
B SC (MCGILL), PH D (MCGILL)
LECTURER DEPARTMENT OF PHYSIOLOGY
MCINTYRE MED SCI BLDG
1819B LINCOLN AVE, MONTREAL QUE

WELLS, DALLAS B, MRS 392-8237
BA (MARIETTA)
METEOROLOGY DEPT, BURNSIDE HALL
3563 UNIVERSITY ST, APT 30, MONTREAL 112 QUE

WELLS, ELLEN C, MRS 392-4772
GRADUATE SOC OF MCGILL, 3618 UNIVERSITY ST
4200 CAVENDISH ST, APT 16, MONTREAL 261 QUE
484-7938

WELLS, PATRICIA A, MRS 392-5053
DIP PT (MCG), TEACH DIP (TORONTO),
B PT (MCGILL)
ASSISTANT PROFESSOR
PHYSICAL/OCCUPATIONAL THERAPY
PHYSICAL THERAPY, DAVIS HOUSE
210 ELGAR, NUNS ISLAND MONTREAL 201, QUEBEC

WEMETT, LAUREL, MISS 392-4528
BA (ST U OF NY)
FACULTY OF MUSIC, 555 SHERBROOKE W,
MONTREAL 111 P Q
4236 ST URBAIN, MONTREAL 131 PQ 849-1937

WENER, JOSEPH, DR 842-1251
BSC (MCGILL), M SC (MCG), MDCM (MCGILL)
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL VICTORIA HOSPITAL
5845 COTE DES NEIGES RD, MONTREAL QUE

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143 SUMAC DRIVE, BEACONSFIELD QUE 695-1987

WESTLEY, WILLIAM A, PROF 392-3077
B A (CHIC), M A (CHIC), PH D (CHIC)
PROFESSOR SOCIOLOGY
RESEARCH DIRECTOR OF IND RELATIONS CTR
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2090 SHERBROOKE ST W, MONTREAL QUE 935-5022

WHITE, BOYD ERIC, PROF 392-8858
B A (SIR GEORGE WILLIAMS), M FA (GUANAJUATO)
M A U T
ASSISTANT PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
15 CHATILLON STREET, LORRAINE TERREBONNE CO.
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WHITE, JOAN A, PROF 392-8862
MOD BA (TRINITY DUBLIN), MA (MCGILL),
B A (TRINITY)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
5733 SMART AVE, COTE ST LUC QUE 481-3207

WHITE, NORMAN, PROF 392-4611
BA (MCGILL), M S (UNIV PITTSBURGH),
PHD (PITTSBURGH)
ASSISTANT PROFESSOR PSYCHOLOGY
STEWART BIO BLDG
439 GROVESNOR AVENUE, WESTMOUNT 217 QUE
937-4526

WHITEHEAD, JOHN W, DR
B A (N CAROLINA), D D S (MCG)
DEMONSTRATOR STUDENT FACULTY OF DENTISTRY
DENTISTRY, 2273 LUCERNE, T M R QUE
2273 LUCERNE RD, TOWN OF MT ROYAL QUE 731-0669

WHITEHEAD, MICHAEL A, PROF 392-5783
BSC (LONDON), PHD (LONDON)
ASSOCIATE PROFESSOR CHEMISTRY
OTTO MAASS BLDG
C/O THEORET CHEM DEPT, 1 SOUTH PARKS RD,
OXFORD ENGLAND

WHITEHEAD, V MICHAEL, DR 937-6011
BA (CANTAB), M A (CANTAB), MDCM (MCGILL)
F R C P (C), C R C P (C), C C P S Q
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
3437 ONTARIO AVE, MONTREAL 109 QUE 845-1347

WHITESIDE, ANNA, MISS
B A HONS (NOTTINGHAM), PH D (U B C)
VISITING LECTURER FRENCH
PETERSON HALL
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WHITMORE, G A, PROF 392-5140
B SC (MANITOBA), MS (UNIV OF MINNESOTA),
PH D (MINNESOTA)
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
184 NORWOOD AVE, POINTE CLAIRE QUE 697-4659

WHITTEMORE, NEWELL BLAIR, DR
BSC (BISHOPS UNIVERSITY),
MDCM (MCGILL UNIVERSITY)
F R C P (C), L M C C
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED & CL MED MGH, 1650 CEDAR, MONTREAL 109 QUE
46 CURZON AVE, MONTREAL 263 QUE 937-6011

WHITTLE, INEZ, MISS 392-5327
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B A (LOYOLA), M SC ED (HOFSTRA)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
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WHITWELL, RICHARD, PROF 392-8821
BSC (LONDON), MA (MCGILL)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
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F R C S(C), C P S Q
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BSC (MCGILL), MD (MCGILL)
DEMONSTRATOR SENIOR DEPT OF PEDIATRICS
2300 TUPPER, MONTREAL 108 QUE
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WIENER, ROBERT M, DR
DDS (MCGILL), MS (CHIC), DDS (MCGILL)
ASSISTANT PROFESSOR FACULTY OF DENTISTRY
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BA (MCGILL), M A (TOR), PHD (MCGILL)
ASSOCIATE PROFESSOR PSYCHOLOGY
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WIGLESWORTH, F W, DR
MD (MANITOBA)
PROFESSOR DEPT OF PATHOLOGY(TEACH)
2300 TUPPER ST, MONTREAL 108 QUE
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WILANSKY, DOUGLAS, DR
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F R C P C
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ED D (SPRINGFIELD COLLEGE)
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PH D (TORONTO)
ASSISTANT PROFESSOR ENGLISH
ENGLISH DEPT, ARTS BLDG
3637 STE FAMILLE, MILTON PARK, MONTREAL 130 QUE
WILLIAMS, EDWARD E J, MR
B SC (U OF PENNSYLVANIA), PH D (U OF TEXAS)
ASSOCIATE PROFESSOR FACULTY OF MANAGEMENT
FAC. OF MANAGEMENT, BRONFMAN BLDG
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SURGERY M G H
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BA (MT HOLYOKE), M A (N Y U)
LECTURER SPANISH
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3674 STE FAMILLE ST, APT 3, MONTREAL 130 QUE
WILLIS, G CHRISTOPHER, DR
B S C (MCGILL), M D C M (MCGILL)
F R C P(C), M R C P, F A C P
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
SCHOOL FOR GRAD NURSES, MONTREAL GENERAL HOSP,
1650 CEDAR AVE MTL QUE
3733 THE BOULEVARD, MONTREAL 217 QUE 482-7030
WILNER, SAUL, DR
BA (MCGILL), MDCM (MCGILL)
QPA
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE STE CATHERINE,
MONTREAL 249 QUE
759 KENASTON AVE, MONTREAL 306 QUE 731-9711
WILSON, ANDREW, MR
LECTURER FACULTY OF DENTISTRY
1500 ST CATHERINE ST W
WILSON, C LAIRD, DR
B SC (MCGILL), MD CM (MCG), MD (MCGILL)
FRCS(C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY MTL GEN HOSP, 1650 CEDAR AVE,
MONTREAL 109 QUE
3550 COTE DES NEIGES RD, MONTREAL QUE
WILSON, CHARLES M, PROF **392-4653**
BS (UNIV OF VIRGINIA), M A (VIR),
PHD (HARVARD UNIV)
PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
3460 SIMPSON AVE, APT 508 MONTREAL QUE 932-4856
WILSON, JAMES A S, DR
MD (DALHOUSIE)
FRCS(E), FRCS(C)
ASSISTANT PROFESSOR DEPARTMENT OF SURGERY
SURGERY, ROYAL EDWARD CHEST HOSP
1538 SHERBROOKE ST W, MONTREAL QUE 933-6903
WILSON, JANE, MISS **392-5034**
SCHOOL FOR GRAD NURSES, WILSON HALL
C/O MRS A FETTERLY, 4250 WESTHILL AVE,
MONTREAL 261 QUE 7
WILSON, JEANETTE T, MISS **392-5176**
ANTHROPOLOGY DEPT, STEPHEN LEACOCK BLDG
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BSC (MCGILL), M SC (MCG), PHD (MCMASTER)
ASSISTANT PROFESSOR GEOGRAPHY
DEPT OF GEOGRAPHY, BURNSIDE HALL
30 GREENFIELD AVE, GREENFIELD PARK QUEBEC
WILSON, ROLLA E, DR
BSC (MOUNT ALLISON), MDCM (MCGILL)
ASSISTANT PROFESSOR DIAGNOSTIC RADIOLOGY

R V H
3250 FOREST HILL, APT 1509 MONTREAL 26 QUE

WILSON, STANLEY, MR
YMCA IN MCGILL
4170 DORCHESTER ST W, MONTREAL QUE

WILSON, STUART, PROF 392-5403
B ARCH (MCG)
ARIBA
PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE, MCCONNELL ENG BLDG
2459 BENNY AVE, MONTREAL QUE

WILSON, WILLIAM E, DR
B SC (MCGILL), MD CM (MCG), M SC (MCGILL)
ASSISTANT PROFESSOR DEPARTMENT OF ANATOMY
ANATOMY STRATH MED BLDG, 3640 UNIVERSITY ST
5 DECARY PLACE, DORVAL 780 QUE

WINKLER, CARL A, PROF 392-4436
D SC (MAN), LL D (QUEEN'S)
OBE
B SC (MANITOBA), M SC (MANITOBA), D PHIL (OXON)
P H D (MCGILL)
O B E, F C I C, F R S A
PROFESSOR CHEMISTRY
OTTO MAASS CHEM BLDG
141 EASTON AVE, MONTREAL 28 QUE 486-1867

WINKLER, ISRAEL, DR
BA (MCGILL UNIVERSITY),
MD CM (MCGILL UNIVERSITY)
FACP, FCCP, CRCP (C), FRCP
LECTURER DEPT OF MEDICINE & CLIN MED
MEDICINE & CLINIC MED, ROYAL EDWARD CHEST HOSP
5845 COTE DES NEIGES RD, STE 415,
MONTREAL 249 QUE 731-8123

WINTER, ERIC, PROF 392-8820
BSC(ECON) (LONDON), B ED (MELB),
MA (TASMANIA)
CAG, CAPE
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
FACULTY OF EDUCATION, 3700 MCTAVISH ST
45 ELMWOOD AVE, SENNEVILLE QUE

WISE, MELVIN B, DR 392-4236
MD (U W ONTARIO)
ASSISTANT PROFESSOR DEPT OF PEDIATRICS
DIRECTOR FACULTY OF MEDICINE
DIRECTOR DEPT OF PEDIATRICS
FACULTY OF MEDICINE, 3655 DRUMMOND STREET
35 BELSIZE RD, HAMPSTEAD QUE 937-8511

WISEBORD, NATHAN, PROF
BA (QUEENS), M A (U MONTREAL),
MD (U OF MONTREAL)
ASSISTANT PROFESSOR DEPARTMENT OF PSYCHIATRY
PSYCH JWSH GEN HOSP, 4333 COTE ST CATHERINE,
MONTREAL 249 QUE
2 HUDSON AVE, WESTMOUNT QUE 845-5404

WISEMAN, FRED, MR
B SC (MCGILL), MD (UNIV WEST ONT)
C R C P
DEMONSTRATOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, MONTREAL CHILD HOSP,
2300 TUPPER ST
2117 VENIARD, VILLE ST LAURENT QUE

WOELBER, WERNER, DR
MD (BERLIN)
LECTURER DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER ST
PED MTL CHILDRENS HOSP, 2300 TUPPER ST,
MONTREAL QUE 692-0343

WOJCIECHOWSKI, MONIKA S, MISS 392-8031
INSTRUCTIONAL COMM CENTR, MACDONALD CHEM BLDG
3400 RIDGEWOOD AVE, APT 33, MONTREAL 247 QUE

WOLANSKYJ, BOHDAN M, DR
MED DOCTOR (BERLIN), CRCPS (PATHOLOGY)
LECTURER DEPT OF PATHOLOGY(TEACH)
3775 UNIVERSITY ST
5784 CALDWELL ST, MONTREAL 269 QUE

WOLDRING, ROELF, MR 392-5023
SUPERVISOR DATA CTR MANAGEMENT SYSTEMS
6TH FLOOR, ADMINISTRATION BLDG

WOLFE, LEONHARD S, DR 181-454
BSC (U OF N Z), M SC (U OF N Z),
MD (WESTERN ONT), PHD (CAMBRIDGE)
PROFESSOR DEPT OF EXP NEUROCHEMISTRY
PROFESSOR DEPARTMENT OF BIOCHEMISTRY
DEPT OF EXP NEUROCHEMIST, 3801 UNIVERSITY ST
4700 WESTMOUNT AVE, MONTREAL 6 QUE

WOLFE, LILA, MRS 392-8826
B SC (MCGILL)
LECTURER FACULTY OF EDUCATION
FAC OF ED, EDUCATION BLDG, 3700 MCTAVISH
7488 GUELPH, COTE ST LUC QUE

WOLFSON, NANCY, MISS 392-4683
B A (WIS), MS (TENN), PH D (DUKE)
ASSOCIATE PROFESSOR BIOLOGY
BIOLOGY DEPT, STEWART BIOLOGY BLDG
3445 PEEL ST, APT 1 MONTREAL QUE 392-4683

WOLOCH, GEORGE M, PROF 392-5220
BA (YALE), BA (OXON), MA (OXON)
PH D (JOHNS HOPKINS)
ASSOCIATE PROFESSOR CLASSICS
STEPHEN LEACOCK BLDG
1260 MCGREGOR AVE, MONTREAL QUE 844-7685

WOLODKOWICZ, ANDREW, MR 392-5328
BA (STRASBOURG), BLS (U OF MTL), MA (U OF MTL)
CBPPQ
LIBRARIAN MCLENNAN LIBRARY - CAT
CATALOGUING, MCLENNAN LIBRARY
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731-0867

WONG, CHRISTINE, MRS 392-5355
BUSINESS OFFICE, ADMINISTRATION BLDG
217 STILLVIEW ROAD, APT 114, POINTE CLAIRE QUE

WONG, ELLEN OI-LUN, MISS
B MUS (MCGILL)
TEACHING ASSISTANT FACULTY OF MUSIC
FACULTY OF MUSIC, 555 SHERBROOKE ST W, MONTREAL
16 BEGONIA RD 1ST FLOOR, KOWLOON HONG KONG
845-6519

WONG, MAUREEN, MRS 392-3065
BA (HONG KONG U), MLS (NYSU)
LIBRARIAN MEDICAL LIBRARY
MCINTYRE MED BLDG
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WOOD, DAVID JOHN, DR 937-8511
M D (MANITOBA)
LECTURER DEPARTMENT OF PSYCHIATRY
241 RIVER ST, ST LAMBERT QUE 672-4336

WOOD, ELEANOR, DR
B A (U B C), M A (U OF T), M D (U OF T)
PH D (U OF T)
SESSIONAL LECTURER
DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIO & IMMUNO, PATHOLOGY INST
22 EDGEHILL RD, WESTMOUNT QUE

WOOD, LOUISE, MRS 453-6580
ADMINISTRATION, MACDONALD COLLEGE 800, QUE
19 MAPLE AVE, STE ANNE DE BELLEVUE QUE 453-1805

WOOD, SUSAN E, MISS 392-5126
STUDENT AFFAIR ADMIN FACULTY OF LAW
3644 PEEL STREET
1554 PINE AVE W APT 10, MONTREAL 109 PQ

WOOD, TERRY, PROF 392-4258
A R C S (IMP COLL LONDON), D I C (LOND),
PH D (LONDON)
A R C S
99
MCINTYRE MEDICAL SCIENCES CENTRE
BIOCHEMISTRY DEPT, MCINTYRE MED SCI CTR
4488 ST CATHERINE ST W, APT 404 MONTREAL QUE
932-4029

WOODHOUSE, DONALD H, DR
FRCP(C)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED

MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
6 LANCASTER DRIVE, POINTE CLAIRE QUE

WOODHOUSE, ROSEMARY, MISS 392-5349
PRINCIPAL S OFFICE, ADMINISTRATION BLDG
72 CHAMBORD, LORRAINE QUE 625-3937

WOODLAND, DENNIS, MR 453-6580
B A (WALLA WALLA COLLEGE),
M A (WALLA WALLA COLLEGE)
ASSISTANT PROFESSOR
DEPARTMENT OF PLANT PATHOLOGY
CURATOR OF HERBARIUM
DEPARTMENT OF PLANT PATHOLOGY
DEPARTMENT OF PLANT PATH, MACDONALD COLLEGE 800 QUE
24 ST GEORGE APT 109, STE ANNE DE BELLEVUE QUE, 453-5834

WOODS, HARRY D, PROF 392-5858
LLD (UNB)
BA (UNB), MA (MCGILL)
BRONFMAN PROF ECONOMICS
BRONFMAN PROFESSOR FACULTY OF ARTS
ECONOMICS, STEPHEN LEACOCK BLDG
30 EASTON AVE, MONTREAL WEST QUE

WOODS, JOHN, DR 842-1251
MB BCH BAO (UNIV COLL DUBLIN), M SC (MCGILL)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
ASST NEUROLOGIST NEUROLOGY & NEUROSURGERY
ASST EEG-ER LABORATORY-E E G
NEUROLOGY & NEUROSURGERY, 3801 UNIVERSITY ST
1260 MCGREGOR APT 505, MONTREAL 109 QUE 843-4131

WOODS, SUSAN M, MISS 392-5719
BSC (MCGILL UNIVERSITY),
MSC (MCGILL UNIVERSITY)
MARINE SCI CTR RM 411, 772 SHERBROOKE W
4315 MELROSE AVE, APT 23, MONTREAL 261 PQ

WOODSWORTH, DAVID E MR 392-5035
BA (TORONTO), M A (MICH), PH D (BRANDEIS)
CPSWPQ
PROFESSOR SCHOOL OF SOCIAL WORK
DIRECTOR SCHOOL OF SOCIAL WORK
SCHOOL OF SOCIAL WORK, 3506 UNIVERSITY ST
15 FAIRFIELD CRES, MONTREAL WEST QUE 488-3556

WOOLHOUSE, F M, DR
BSC (SASK), MD CM (MCG)
FRCS(C)
PROFESSOR DEPARTMENT OF PHYSIOLOGY
SURGERY MGH, 1650 CEDAR AVE, MONTREAL 109 QUE
1190 DUNVEGAN AVE, TOWN OF MOUNT ROYAL QUE 935-6011

WOOLSEY, JOHN T, PROF 392-5867
C D
DIPLOMA (ROYAL MILITARY COLL), M A (SGWU)
P ENG, MEIC
ASSOCIATE PROFESSOR FACULTY OF ENGINEERING
MACDONALD ENG BLDG
1260 MCGREGOR AVE, APT 804 MONTREAL 109 PQ 849-3825

WOONTON, GARNET A, PROF
B A (W ONT), M A (W ONT), D SC (W ONT)
F I R E, F R S C
VISITING PROFESSOR PHYSICS
EATON ELECT LAB
7400 DETILLY ST, MONTREAL QUE

WORDEN, JOHN HOWARD, MR 392-4936
MCLENNAN LIBRARY, CIRCULATION DEPT,
3459 MCTAVISH ST MTL
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WORSLEY, GEOFFREY HENRY, DR
MB CHB (LIV)
DEMONSTRATOR SENIOR DEPT OF MEDICINE & CLIN MED
MEDICINE AND CLINIC MED, MONTREAL GENERAL HOSP
41 BALFOUR AVE, MONTREAL 304 QUE

WRIGHT, GEORGE T F, MR 453-6580
SUPERINTENDANT BLDGS GRDS MTCE (MAC)
BUILDINGS & GROUNDS
MACDONALD COLLEGE 800, QUE
295 BRIGHTON DRIVE, BEACONSFIELD 880 QUE 695-1571

WRIGHT, HAROLD R C, PROF 392-5234
B A (CANTAB), MA (CANTAB), PH D (CANTAB)
PROFESSOR ECONOMICS
STEPHEN LEACOCK BLDG
2255 ST MATTHEW ST, APT 806, MONTREAL QUE 931-3342

WRIGHT, ISOBEL, MISS
LECTURER DEPT OF PEDIATRICS
PED MTL CHILDRENS HOSP, 2300 TUPPER ST,
MONTREAL QUE

WRIGHT, JOHN C, DR 392-4691
B A (MCGILL), M A (U WISC), PH D (U WISCONSIN)
ASSOCIATE PROFESSOR PSYCHOLOGY
STEWART BIO BLDG
2100 TUPPER ST APT 102, MONTREAL, QUE 937-2198

WRIGHT, MURIEL MARGARET, MRS 453-6580
B A (SASK), B ED (SASK), B L S (MCG)
QLA, CPLQ
LIBRARIAN LIBRARY MACDONALD COLL
MACDONALD COLLEGE 800 PQ
295 BRIGHTON DRIVE, BEACONSFIELD 880 QUE 695-1571

WRIGHT, ORLAND GRAHAM, MR 181-297
MICROBIOLOGY ▮ IMMUNOLOG, PATHOLOGICAL INST
18 CAMERON AVE, HUDSON QUE 236-5231

WU, JIM H T, PROF 392-5480
B ENG (TSING HUA), MA SC (TOR), PH D (MCGILL)
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
132 SHERATON DRIVE, MONTREAL WEST QUE 844-4012

WYATT, ANNE, MRS 453-6580
FOOD SCIENCE, MACDONALD COLLEGE 800, QUE
6 MAPLE AVE APT 45, STE ANNE DE BELLEVUE QUE 453 5656

WYGNANSKI, JADWIGA, MRS 392-5829
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M L S (MCG)
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ASSISTANT PROFESSOR DEPARTMENT OF ANAESTHESIA
ANAESTHESIA, ROYAL VICTORIA HOSPITAL
22 FAIRFIELD CRES, MONTREAL WEST QUE

YALOVSKY, MORTY, MR 392-8299
BSC (MCGILL), MSC (MCGILL)
LECTURER MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
5350 RANDALL AVE, MONTREAL 265 QUE 488-4023

YAMAGUCHI, DIANE A, MISS 453-1880
BA (BARNARD)
COMPUTER CENTRE, MACDONALD COLLEGE 800 PQ
5 KENT ST, ST ANNE DE BELLEVUE QUE

YAMAMOTO, Y LUCAS, DR 181-408
MD (HOKKAIDO UNIV), PHD (YOKOHAMA UNIV)
ASSISTANT PROFESSOR NEUROLOGY & NEUROSURGERY
ASSISTANT DIRECTOR LABORATORY-BRAIN SCANNING
LABORATORY-BRAIN SCANNIN, 3801 UNIVERSITY ST
4861 PARKINSON BLVD, PIERREFONDS QUE 684-8591

YAMASHITA, ELIZABETH M, MISS 392-4943
B A (SGWU), MLS (MCGILL)
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8443 CLARK, MONTREAL 351 QUE 384-9542

YAPHE, WILFRED, PROF 181-1771
BSC (MCGILL), PHD (MCGILL)
PROFESSOR DEPT MICROBIOLOGY - IMMUNOLOGY
MICROBIOLOGY & IMMUN, PATHOLOGICAL INST
5719 PALMER ST, MONTREAL 268 QUE 481-6508

YAROSKY, HARVEY, MR 392-3029
LECTURER FACULTY OF LAW

3644 PEEL STREET, MONTREAL 112 PQ
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MONTREAL 111 QUE 270-3286

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LECTURER DEPT OF METALLURGICAL ENG
METALLURGICAL ENGNRNG, FRANK DAWSON ADAMS BLDG
625 MILTON ST APT 108, MONTREAL 130 QUE
288-1826

YIP, GAR LAM, PROF 392-5414
BSC (IMPERIAL COLLEGE), M SC (QUEEN S UNIV),
PHD (TORONTO)
ASSISTANT PROFESSOR DEPT OF ELECTRICAL ENG
MCCONNELL ENG BLD
10 JASPER AVENUE, TOWN OF MOUNT ROYAL,
MONTREAL P Q 738-5923

YONG, MANSEN, DR 392-4279
B SC (NAT TAIWAN), M SC (ALTA), PHD (ALTA)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARM & THERAPEUTICS, MCINTYRE MED SCI CTR
PLACE BELLERIVE, APT 5, CHOMEDEY LAVAL QUE

YONG, RAYMOND, PROF 392-4751
BA (WASHINGTON&JEFFERSO), MSCE (PURDUE),
M ENG (MCG), PH D (MCGILL)
MICE, MASCE, AMHRB, MEIC
DIRECTOR SOIL MECHANICS LAB
PROFESSOR DEPT OF CIVIL ENG
DEPT OF CIVIL ENG, MACDONALD ENGR BLDG
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LECTURER DEPT OF MEDICINE & CLIN MED
DEPARTMENT OF PHYSIOLOGY, MONTREAL GENERAL HOSP
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YOUNG, FREDERICK JACK, PROF 392-8824
B ED (BRITISH COLUMBIA), MA (KENT STATE)
ASSOCIATE PROFESSOR FACULTY OF EDUCATION
3700 MCTAVISH ST
BOX 121, MACDONALD COLLEGE QUE 453-7006

YOUNG, HORACE O R, DR
B SC (MCGILL)
C R C P
DEMONSTRATOR DEPT OF PEDIATRICS
DEPT OF PEDIATRICS, 2300 TUPPER, MONTREAL QUE
31 FERNCREST ST, DOLLARD DES ORMEAUX QUE
695-7811

YOUNG, M H VINCENT, DR 842-1251
B A (MCGILL), MD CM (MCG), DIP OB (MCG)
L M CC (MCG)
MRCOG(ENG), FRCS(C), F A C S, F R C O G
ASSOCIATE PROFESSOR
DEPT OF OBSTETRICS & GYNAECOLY
OBSTETRICS & GYNAEC, WOMENS PAVILION, R V H
3550 COTE DES NEIGES RD, MONTREAL QUE

YOUSTER, ALLAN, MR
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1500 MACDONALD, ST LAURENT QUE 747-4342

YOUSTER, GAIL, MRS
MCLENNAN LIBRARY - CIRC, MCLENNAN LIBRARY
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ZABLOCKA-ESPLIN, BARBARA, DR 392-5763
PHYSICIAN (WARSAW), MD (WARSAW)
ASSISTANT PROFESSOR
PHARMACOLOGY AND THERAPEUTICS
PHARM & THERAPEUTICS, MCINTYRE MED SCI CTR
3 PARKSIDE PLACE, MONTREAL 109 QUE 937-8093

ZACKON, BERYL, MRS 392-3076
RES ANALYST INDUSTRIAL RELATIONS CENTRE
INDUSTRIAL RELATIONS CEN,
762 SHERBROOKE ST WEST,MONTREAL 110 QUEBEC
8445 CHAMPANGEUR ST, MONTREAL QUE 272-2686

ZAKARIJA, MARGITA, PROF 181-1780
M D (ZAGREB YUGOSLAVIA)
ASSISTANT PROFESSOR UNIVERSITY CLINIC R V H
ROYAL VICTORIA HOSP
666 SHERBROOKE ST W, APT 1805, MONTREAL QUE
845-8889

ZARRELI, LINO, MR 392-5297
ADMISSIONS OFFICER ADMISSIONS OFFICE
F CYRIL JAMES BLDG
6060 HOUEL, ST LEONARD 451 QUE 255-5753

ZBOROWSKA-SLUIS, DANUTA, PROF 181-1758
BA (BRASIL), MSC (MCGILL),
MD (NOTRE DAME DE SION)
ASSISTANT PROFESSOR DEPT OF MEDICINE & CLIN MED
MED CARDIOLOGY, R V H
4059 GRAND BLVD, MONTREAL 261, QUEBEC

ZGARKA, ALBERT, PROF 392-8861
1ST BAC (ALGIERS), BREV ENSEIGN (QUEBEC),
LICENSE (ALGIERS)
ASSISTANT PROFESSOR FACULTY OF EDUCATION
INSTRUCTOR DEPT
STAFF FRENCH COURSES, PETERSON HALL
661 AVE QUERBES, OUTREMONT QUE 272-5355

ZIDULKA, ARNOLD, DR 392-8008
B SC (MCG), BA (S G W U), MD CM (MCG)
RESEARCH ASSOCIATE UNIVERSITY CLINIC R V H
PROFESSOR DEPT OF MEDICINE & CLIN MED
UNIVERSITY CLINIC R V H, DEPT MED R V H
5558 PINEDALE AVE, COTE ST LUKE QUE 342-2320

ZIMAKAS, WILLIAM B, DR
B SC (URSINUS), D DS (MCGILL)
LECTURER FACULTY OF DENTISTRY
DENTISTRY, 1374 SHERBROOKE, MONTREAL 109 QUE

ZIMMERMANN, ROBERT C, DR 392-5700
AB (CALIFORNIA), MA (SYRACUSE),
PHD (JOHNS HOPKINS)
ASSISTANT PROFESSOR GEOGRAPHY
BURNSIDE HALL
377 CLARKE AVENUE, WESTMOUNT 215 QUE 933-7415

ZLATUSCHKA, EVA, MISS 392-5380
BA (MCGILL)
ACQUISITIONS, MCLENNAN LIBRARY
4857 MONTCLAIR AVE, N D G, MONTREAL QUE
482-5502

ZLOBEC, SANJO, PROF 392-8205
B S (ZAGREB), M SC (UNIV ZAGREB),
PHD (NORTHWESTERN)
ASSISTANT PROFESSOR MATHEMATICS
DEPT OF MATHEMATICS, BURNSIDE HALL
1230 MCGREGOR AVE, MONTREAL 109 QUE 849-4934

ZOLTOWSKA, MARIA THERESA, MRS
SCHOOL OF SOCIAL WK LIB, WILSON HALL
4633 EARNSCLIFFE AVE, MONTREAL QUE

ZSOMBOR-MURRAY, P J, PROF 392-5461
B ENG (MCGILL), M ENG (MCGILL), PH D (MCGILL)
CIQ
ASSOCIATE PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
5677 QUEEN MARY RD, HAMPSTEAD, MONTREAL 254 QUE

ZUBER, ROGER, PROF 392-4482
B EN L (STRASBOURG), LL (SORBONNE),
ADL (FRANCE), D EN L (SORBONNE)
PROFESSOR FRENCH

FRENCH LANG & LIT, PETERSON HALL
62 RUE DE SILLERY, 51 REIMS FRANCE 486-5584

ZUCKERMAN, MARTIN, PROF **392-4787**
B A (OXON), MA (OXON), PH D (OXON)
ASSOCIATE PROFESSOR PHYSICS
MACDONALD CHEMISTRY
105 HILLCREST, VILLE ST PIERRE QUE 487-1007

ZUK, LUBA, MISS **392-4558**
L MUS (MCGILL)
LECTURER FACULTY OF MUSIC
555 SHERBROOKE ST WEST
43 NELSON AVE, OUTREMONT 153 QUE 272-1655

ZUK, RADOSLAV, PROF **392-8021**
B ARCH (MCGILL), M ARCH (MASS)
P Q A A
ASSOCIATE PROFESSOR SCHOOL OF ARCHITECTURE
ARCHITECTURE DEPT, MCCONNELL ENG BLDG
43 NELSON AVE, OUTREMONT QUE 272-1655

ZWAIG, MARILYN S, MISS
DIPL ED (MCGILL), B A (S G W U), M A (SYRACUSE)
SESSIONAL LECTURER FACULTY OF EDUCATION
EDUCATION, 3700 MCTAVISH ST
8495 L ACADIE BLVD, APT 602, MONTREAL 303 QUE

ZWARTS, FRANK, PROF **392-5475**
B ENG (MCGILL), M ENG (MCGILL), PHD (MCGILL)
ASSISTANT PROFESSOR
DEPT OF MECHANICAL ENGINEERING
MECHANICAL ENGINEERING, MACDONALD ENGR BLDG
4095 COTE DES NEIGES RD, APT 1, MONTREAL QUE

McGill University

UNDERGRADUATE SCHOLARSHIPS, BURSARIES, PRIZES, MEDALS and LOAN FUNDS 1973-74

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The booklet is not available for distribution to individual students.

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2 GENERAL INFORMATION

2.1 ENTRANCE SCHOLARSHIPS

The policy of the University is to recognize and honour scholarship, and the University Scholarships Committee selects scholarship winners from among those students who have obtained a high first class academic standing.

When a student has been selected for an award and is in financial need, it is the further policy of the University to meet that need as far as resources permit. However, in order to be considered for a scholarship of major financial value, a student must complete the Application for Financial Aid.

All students who wish to be considered for Entrance Scholarships must complete the Application for Entrance Scholarship by March 1. These forms may be obtained from the Admissions Office, McGill University, P.O. Box 6070, Montreal 101, Quebec. By submitting this application students will be considered automatically for every entrance scholarship for which they are eligible.

Entrance Scholarships are open to Canadian citizens, landed immigrants of twelve months residence, or graduates of Canadian high schools, colleges and other institutions. Entrance Scholarships are awarded only to students taking a regular course leading to an undergraduate degree, and applicants must be entering the First year of a university program.

2.2 AWARDS TO McGILL STUDENTS IN COURSE

Once a student is in course at McGill all scholarships, prizes and medals are awarded automatically based on the year-end examination results. No applications are required. During undergraduate studies most scholarships are renewable annually provided the student maintains a sufficiently high standard in his university work.

Inquiries concerning scholarships should be referred to the Registrar's Office.

Students whose scholarships have been renewed and who need financial assistance should apply directly to the Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec.

2.3 BURSARIES AND LOANS

Applications for McGill bursaries and loans should be directed to the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec. These awards are made on the basis of financial need.

All applicants for aid are also expected to apply for maximum government grants or other assistance for which they may be eligible (see section 2.4). The Student Aid Office may be able to estimate the amount of such assistance and should be consulted.

2.4 PROVINCIAL BURSARIES AND LOANS

In all cases, a basic qualification is that the applicant must be a Canadian citizen or a landed immigrant with one year's residence and domicile in the province to which he applies.

When a student applies for financial assistance from government, Canadian or non-Canadian, and when certification of the student's status is required on such an application form such certification must be obtained from the McGill Student Counselling-Student Aid Office.

In all provinces, except Quebec and Ontario, the provincial authority listed below administers the Canada Student Loan Plan (Federal) as well as their own programs. The addresses are as follows:

Quebec: Apply for a Quebec registration card, after May 1, at the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, P.Q.

Ontario: Application forms for Ontario aid may be obtained after May 15 from the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, P.Q.

New Brunswick: Department of Youth & Welfare, Fredericton, N.B.

Yukon Territory: The Students Financial Assistance Awards Committee, c/o Superintendent of Schools, Box 2703, Whitehorse, Yukon.

Northwest Territories: c/o Education Division, Department of Northern Affairs & Resources, 150 Kent Street, Ottawa, Ontario.

For the Provinces of Newfoundland, Prince Edward Island, Nova Scotia, Manitoba, Saskatchewan, Alberta, British Columbia: write to the Provincial Department of Education.

2.5 GENERAL REGULATIONS

(1) Scholarships are awarded and bursaries and loans are granted only to full-time students taking a regular course leading to a degree.

(2) Scholarships are awarded or renewed only if an adequate academic standing is attained.

Information concerning Postgraduate Awards, Fellowships and Bursaries is contained in a separate booklet, which may be obtained from the Fellowships Office, Faculty of Graduate Studies and Research, or the Registrar's Office.

3 ENTRANCE SCHOLARSHIPS AND BURSARIES

3.1 ENTRANCE REQUIREMENTS

In general, the University's system of entrance scholarships is designed to enable good students from all parts of Canada to attend McGill. Students who have obtained a high first class academic standing or who expect to obtain such standing in their examination results will be considered for these scholarships.

Students are advised by the Admissions Office as to the supporting documents which are required to support their Application for Admission and for Entrance Scholarship.

All Canadian students who apply directly from a secondary school for admission to the First or Second year of the undergraduate programs must take the Canadian SACU (Service for Admission to College and University) tests. These consist of a Scholastic Aptitude Test (Verbal and Mathematical) and a mother-tongue Achievement Test. Information about these tests and directions for applying may be obtained from the High School Guidance Officer or from SACU Test Administration, 151 Slater Street, Ottawa, Ont.

Applications for Entrance Scholarships must be made to the Admissions Office on or before March 1.

3.2 SCHOLARSHIPS

SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS. — Six scholarships in Mathematics or in Classics (Greek and Latin) of an annual value of $250. Renewable until completion of first degree and open to students entering the Faculty of Arts or of Science. Founded by the late Sir Edward Beatty, former Chancellor of the University. Open only to students who are Canadian citizens or landed immigrants, and awarded primarily for ability in either Classics or Mathematics, but ability in other subjects may be taken into account. The winners on entering the University need not necessarily take courses leading to honours in Classics or in Mathematics, but may enter any course for which they are qualified in the Faculties.

CANADIAN PACIFIC SCHOLARSHIPS. — Two scholarships covering tuition fees, tenable in the Faculties of Engineering, Arts, Science, Management and Agriculture, and renewable if the student is in good standing until completion of first undergraduate degree. Open for competition to employees of the permanent staff of Canadian Pacific and to sons, daughters and legal wards of employees, who have not reached their twenty-third birthday prior to June 1.

Application for statements of eligibility to enter the competition should be made to Mr. G. R. Phare, Manager, Management Development Planning, Canadian Pacific, Windsor Station, Montreal. Candidates must complete the McGill Application for Entrance Scholarship, as well as the Application for Admission, to be considered for these scholarships. The forms, accompanied by the Statement of Eligibility, must reach the Admissions Office before March 1.

CHRISTIE-STORER SCHOLARSHIP. — Value $500, endowed by the above-named Chapter of the I.O.D.E. in memory of the men of St. Lambert who fell in the Great War, 1914-18. Awarded to a former graduate student of Chambly County High School residing in St. Lambert who obtains the highest marks for admission to the University entering any full-time undergraduate degree course. Tenable for one year only.

CONSUMERS GLASS COMPANY LIMITED UNIVERSITY EDUCATION AWARDS PLAN. — Open to children or wards of employees and retired employees of Consumers Glass Company Limited for a full-time course of study in any Canadian university or college recognized by the Association of Universities and Colleges of Canada. Value $750 per year until completion of first degree. Awards are automatically renewed provided the students establish continuing eligibility and successfully complete the preceding academic year. Further information and application forms which must be submitted by June 30 may be obtained from the Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIP (DOMINION BRIDGE COMPANY, LIMITED). — Offered by Dominion Bridge Company, Limited, open to all employees of the Company (who have been in continuous service of the Company for at least one year) and its wholly owned subsidiary companies, and to their sons and daughters. Certificates of eligibility for the scholarship must be obtained from the Personnel Department of the Company.

This scholarship will cover tuition fees. In the case of winners from outside Montreal who must meet their own living expenses the amount necessary to cover tuition fees could be augmented somewhat at the discretion of the University Scholarships Committee.

Intended to provide an incentive to eligible candidates to qualify for a university education and to afford them financial assistance while pursuing university studies. The scholarship is tenable in any undergraduate degree course at McGill University and is awarded on the intellectual attainment and academic record of the winner. It may be granted until completion of first undergraduate degree.

In exceptional cases qualified students already in course at McGill may be considered for this scholarship.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIP (DOMINION ENGINEERING WORKS, LIMITED). — Offered by Dominion Engineering Works, Limited, open to all its employees and those of its wholly owned subsidiary companies, and to their sons and daughters. Certificates of eligibility for the scholarship must be obtained from the Personnel Department of the Company.

The value of this scholarship will not exceed $750 if the winner comes from outside Montreal, or if the Committee judges it is desirable for the winner to reside away from home in the interests of his academic work. If the winner can live at home, however, the value will be equivalent to full tuition fees, and the Awarding Committee may in this case make an additional grant where there is financial need.

Intended to provide an incentive to eligible candidates to qualify themselves for a university education in engineering or scientific work or allied subjects, and to afford them financial assistance while pursuing university studies, the scholarship is awarded on the intellectual attainment and academic record of the winner. It may be granted until completion of first undergraduate degree.

In exceptional cases qualified students in the Faculty of Science and the Faculty of Engineering may be considered for this scholarship.

GRACE FAIRLEY TRAFALGAR SCHOLARSHIP. — $200, founded in 1913 by friends and former pupils of the late Miss Grace Fairley, to signalize her long and faithful service to education as head of the Trafalgar Institute. Tenable for one year only and awarded annually to a former graduate pupil of Trafalgar School who obtains the highest marks for admission to the University entering any full-time undergraduate degree course.

NARCISSA FARRAND (MRS. N. PETTES) SCHOLARSHIP. — Founded and endowed by Mr. and Mrs. H. V. Truell, of Sweet Acre, Knowlton, Quebec. Value $600, and renewable until completion of first degree provided the holder maintains a standing satisfactory to the University Scholarships Committee. Awarded annually to the candidate from the Eastern Townships who obtains the highest marks for admission to the University entering any full-time degree course and who has had his domicile in the Eastern Townships for at least five years.

GENERAL MOTORS SCHOLARSHIP. — Entrance scholarship at McGill, established by the General Motors Corporation of Canada and open to an outstanding young Canadian man or woman. Preference will be shown for those students who look forward to careers in industry and to students entering Mechanical Engineering, Commerce and Finance, and Economics. Renewable until completion of first degree provided the holder maintains a satisfactory academic standing. Should a holder withdraw or fail to maintain a satisfactory standing the scholarship may be awarded to another qualified candidate of the same class. Value, $1,000.

SCHOLARSHIPS

SCHOLARSHIP GRANTED BY THE GRADUATES' SOCIETY OF THE DISTRICT OF BEDFORD. — $450, awarded to a student who has taken his or her Grades IX, X, and XI in one of the High Schools of the District of Bedford and who obtains the highest marks for admission to the University to take any full-time undergraduate degree course. May be divided between two students, and is awarded by the Society upon the recommendation of the University Scholarships Committee.

SIDNEY J. HODGSON SCHOLARSHIPS. — Two scholarships of $400 each, founded by Arthur J. Hodgson, Esq., in memory of his son, Sidney James Hodgson, a student of the First year in Arts, who was killed in action on September 27, 1918, while serving in the 66th Battery of the Canadian Field Artillery. Awarded to former graduate pupils of Westmount High School who obtain the highest marks for admission to the University entering any full-time undergraduate degree course.

I. M. LADDON SCHOLARSHIP. — Established by General Dynamics Corporation in tribute to I. M. Laddon, B.Sc. 1915, D.Sc. (Hon.) 1957. Open to U.S. residents entering the Faculty of Engineering. Value $3,500 plus transportation costs. A new award is made on the graduation of the former scholar. Awarded by the University Scholarships Committee in consultation with the Corporation. Application forms may be obtained from General Dynamics Corporation.

HARRY LEIBOVITCH SCHOLARSHIP. — Established by a bequest from the late Harry Leibovitch and awarded under the same conditions as the David Wolfson Scholarships described below.

SIR WILLIAM MACDONALD ENTRANCE SCHOLARSHIPS. — Value $800 each, tenable for one year only, endowed by Sir William Macdonald and open to all students. Three of these scholarships are open to students entering the Faculty of Arts or of Science and one is available for a student entering the Faculty of Management.

JAMES DAVIDSON McCALL SCHOLARSHIP. — Value $1,000. Founded by his family in memory of James Davidson McCall, B.Eng., who was accidentally killed in September 1953, the year of his graduation. Awarded to a student of Canadian citizenship entering the Faculty of Engineering, is renewable until graduation provided the holder maintains satisfactory academic standing. Awarded on academic merit and financial need.

DUNCAN McCASKILL SCHOLARSHIP. — Restricted to students from Nova Scotia. Value $600, renewable until the holder obtains his or her first degree provided the holder maintains an academic average satisfactory to the University Scholarships Committee.

J. W. McCONNELL MEMORIAL SCHOLARSHIPS. — Created and endowed by the late Mr. J. W. McConnell of the Board of Governors as a memorial to the men and women of the University who gave their lives in the war of 1939-45. Open on equal terms to men and women from any part of Canada and tenable in the Faculty of Arts, the Faculty of Science, the Faculty of Management, or the Faculty of Engineering. Each scholarship covers full tuition fees plus cost of board, residence and books and is renewable until completion of first degree. Awards are based on character, financial need and academic record of the applicant. The holder will normally forfeit the scholarship if he fails to maintain satisfactory academic standing.

J. W. McCONNELL SCHOLARSHIPS IN SCIENCE AND ENGINEERING. — Made possible through the generous donation of the late Mr. J. W. McConnell, awarded to students proceeding to degrees in any field of Science or Engineering and renewable each year provided academic standing satisfactory to the University Scholarships Committee is maintained. Candidates must be Canadian citizens or landed immigrants, must show that without this scholarship they would be unable to attend the University, and, on proof of need, may receive up to full tuition fees plus the cost of board, residence and books.

T. H. McGLADE SCHOLARSHIP. — $1,000 annually, established in 1967 by T. H. McGlade, B.A. 1947, for an entrance scholarship. Tenable for one year only by a male student entering any faculty who is a graduate of either Smiths Falls Collegiate Institute or St. Francis High School in Smiths Falls, Ontario. If there is no qualified applicant from these two institutions, the scholarship shall be open to graduates of other secondary schools of the County of Lanark in Ontario or to candidates from the Upper St. Lawrence Valley, particularly from the Brockville and Prescott areas. Awarded by the University Scholarships Committee on the basis of academic merit, character and financial need.

JESSIE NORRIS MEMORIAL AWARD. — $250 awarded annually to a Quebec CEGEP student entering the First year of the University program in the Faculty of Arts or of Science who obtains excellent standing in English Composition and Literature before coming to McGill.

SEBA ABBOTT SMITH MEMORIAL SCHOLARSHIP. — Value $600 renewable annually until completion of first degree provided the holder maintains an academic standing satisfactory to the University Scholarships Committee.

UNIVERSITY ENTRANCE SCHOLARSHIPS. — Awarded on the basis of academic record and open to men and women from any part of Canada. Tenable in any undergraduate degree course and renewable annually until graduation provided sufficiently high academic standing is maintained. University Entrance Scholarships carry a nominal recognition ($100) of their outstanding achievement. Where there is financial need, however, winners may receive further assistance.

MORRIS W. WILSON MEMORIAL SCHOLARSHIPS. — Established by contributions from a large number of intimate friends and business associates of the late Morris W. Wilson as a memorial to a distinguished citizen who, among many public activities, rendered distinguished service to the cause of education, and who, at the time of his death, was Chancellor of McGill University. The fund marks the culmination of a hope long cherished by Mr. Wilson, that young Canadian boys and girls of outstanding ability and promise, but in poor financial circumstances, might obtain a university education. It is hoped that this fund may assist many deserving young Canadians, particularly those from rural areas, to become better equipped to perform the duties of citizenship and so more effectively to aid in the general development and welfare of their country.

Open on equal terms to men and women of Canadian parentage, now resident in Canada, and open only to students who wish to enter the Faculty of Arts, the Faculty of Science, the Faculty of Management, the Faculty of Engineering, or the degree course in Agriculture at Macdonald College. Each scholarship covers the full tuition fee, as well as the cost of board and residence and is renewable until completion of first degree. The holder will normally forfeit the scholarship if he fails to maintain satisfactory academic standing.

DAVID WOLFSON SCHOLARSHIPS. — Two scholarships endowed by Mr. David Wolfson to enable outstanding men and women from all parts of Canada who would not otherwise be able to do so to attend the University. Awarded both to students entering undergraduate degree courses and to students entering any professional faculty of the University except Graduate Studies and Research. The undergraduate work of students entering such professional faculties as Medicine, Dentistry, Law, Religious Studies, etc., must have been completed at some other university. Renewable until completion of first degree, or for the period required for the degree in a professional faculty, provided academic standing satisfactory to the University Scholarships Committee is maintained. The amount awarded depends upon need but may extend to the full costs of tuition, residence and board.

Normally, David Wolfson Scholarships are awarded only to students who reside outside the Montreal area.

Applicants in the professional faculties must apply in the first instance to the Dean of the Faculty or School concerned whose deadline for admissions may be as much as six months earlier.

3.3 BURSARIES

BECHTEL FOUNDATION OF CANADA BURSARY.

CHILDREN OF WAR DEAD (EDUCATION ASSISTANCE) ACT.

ENGINEERS WIVES ASSOCIATION OF MONTREAL BURSARY. — Established in 1961 by a donation from the Professional Engineers Wives Association and awarded in alternate years to a needy and deserving student who is entering either First or Second year in the Faculty of Engineering.*

FEDERAL-PROVINCIAL LOANS AND BURSARIES.

KHAKI UNIVERSITY AND Y.M.C.A. MEMORIAL SCHOLARSHIP FUND.

ISABELLA C. MacRAE SCHOLARSHIP. — Open to residents of Ontario.*

GEORGE J. McMANUS MEMORIAL SCHOLARSHIPS.

EDGAR R. PARKINS MEMORIAL SCHOLARSHIPS AND BURSARIES. — For entering students or for students already in course. The entrance scholarships will be awarded by the University Scholarships Committee and the bursaries by the Student Aid Office without restriction as to faculty. Maximum scholarship value, according to need, up to tuition fees for Montreal residents, up to the amount of tuition fees plus room and board for non-residents.*

QUEEN ESTHER CHAPTER No. 30 ORDER OF THE EASTERN STAR BURSARY. — $100, established in 1951 and awarded to a deserving student entering the University.*

Apply to Student Aid Office.

ST. FRANCIS DISTRICT GRADUATES' SOCIETY BURSARY. — $400, restricted to residents of the area covered by the St. Francis District Branch of the Graduates' Society and open to pupils of any high school or private school entering any faculty or school of McGill University, including Macdonald College. May be renewed for a second year. $250 of the Bursary is to be repaid by the holder at a minimum of $50 per year after graduation. Awarded by the Society on the recommendation of the University Scholarships Committee.

STEEL COMPANY OF CANADA LIMITED BURSARY. — $500 for a maximum of four years to any one student. Open to permanent residents of Canada. Awarded to a capable student who might not otherwise go to University because of lack of funds. Should the student withdraw or perform below the standards set for him, the Bursary may be awarded to another student who has the same number of years to complete before graduation.*

UNIVERSITY BURSARIES.

EDGAR WILSON AND MARGARET WILSON SCHOLARSHIPS.

WOMEN ASSOCIATES OF McGILL BURSARY.

4 SCHOLARSHIPS, BURSARIES, PRIZES AND LOAN FUNDS IN THE VARIOUS FACULTIES AND SCHOOLS OF THE UNIVERSITY

4.1 OPEN TO STUDENTS IN ALL FACULTIES

4.1.1 SCHOLARSHIPS AND BURSARIES

AID TO THE PHYSICALLY HANDICAPPED (QUEBEC). — Students in any faculty who are Canadian citizens or landed immigrants and have been resident and domiciled in Quebec for two years may apply for an outright grant if they have suffered from poliomyelitis, tuberculosis, certain forms of cardiac trouble, or some other physical disability. Apply through the Student Counsellor, Student Counselling-Student Aid Office, McGill University.

ALPHA OMICRON PI BURSARY.

ANONYMOUS DONATION FOR BURSARIES. — Established by an anonymous donor through the Graduates' Society in 1959. Awarded to students entering the University or to undergraduates already enrolled of at least Second Class standing whose records show demonstrated qualities of leadership and character.*

BANK OF NOVA SCOTIA BILINGUAL EXCHANGE SCHOLARSHIPS. — Six annual one-year undergraduate and graduate awards are available, three to French-speaking candidates and three to English-speaking candidates. Undergraduate awards are for $1,500 tenable in the second to last year of a first university degree program. Graduate awards are for $3,000 and graduate students will be expected to outline their proposed programs of study. English-speaking winners may attend any Canadian French-speaking university or college and French-speaking winners may attend any Canadian English-speaking university or college provided it is a member, or federated with, or affiliated to, a member of the Association of Universities and Colleges of Canada. Apply to Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St. Ottawa, Ont. Completed applications must be sent to the above address to arrive not later than March 1.

MARY H. BEATTY SCHOLARSHIPS & BURSARIES. — For men and women in any faculty or year.*

GORDON BENNETT MEMORIAL BURSARIES. — Established in 1969 to provide bursaries for men and women to assist them in obtaining higher education in any faculty. Awarded by the Student Aid Office on the basis of academic merit and financial need.

BIRKS FAMILY FOUNDATION STUDENT AID FUND. — Established in 1963 to be used for bursaries to worthy students in any faculty or year.*

B'NAI B'RITH HILLEL FOUNDATION BURSARY. — Established by the B'nai B'rith Hillel Foundation of McGill University, awarded to a deserving student in any faculty.*

B'NAI B'RITH MOUNT ROYAL LODGE No. 729 BURSARIES. — Three bursaries, open to men and women students in any faculty. Need and scholarship will determine the award.*

**Apply to Student Aid Office.*

B'NAI B'RITH ST. LAURENT LODGE No. 2102 BURSARY. — Awarded from time to time to a deserving student in any faculty.*

MURRAY BROOKS MEMORIAL BURSARIES. — Established in 1962 by Mrs. John E. Gilbert in memory of her father to assist students in good standing, preferably students from India, Pakistan, or Ceylon.*

REVEREND G. O. BRUCE BURSARIES. — Established by the Reverend Guy Oliver Theodore Bruce in memory of his mother, Louisa Howard Bruce and of his brother, John C. Bruce. Awarded to one or two students who have financial need.*

KENNETH M. BURKE BURSARIES. — Established in 1946 by Dr. Hugh E. Burke in memory of his brother, the late Kenneth M. Burke. Open to men and women in any faculty, preference being given to sons and daughters of ministers of religion.*

MR. AND MRS. SAMUEL CAMPBELL BURSARY. — Established in 1972 by Mr. Barry Robert Campbell, B.A. 1971, in memory of his Grandparents, Mr. & Mrs. Samuel Campbell. Awarded annually to a student, preferably studying in Honours English Literature or Political Science, on the basis of financial need.*

CANADIAN ARMY UNVERSITY COURSE MEMORIAL BURSARY. — Established by the Canadian Army University Course Association of McGill University as a memorial to their comrades, Richard F. Gyles, Robert J. Lockhart, and James C. Wheeler, who lost their lives in World War II. Awarded by the Student Aid Office. Preference given to men who volunteered for active service, and their children.*

JOSEPH LAWRENCE CAPLAN MEMORIAL BURSARIES. — Awarded by the Principal on the recommendation of the Student Aid Office to First year students in any faculty who may be thereby helped to obtain a university education.*

CHILDREN OF WAR DEAD (EDUCATION ASSISTANCE) ACT. — Under this Act fees up to $500 and monthly allowances are provided for children of Canadian veterans whose death was attributable to military service in World War I or II. Apply to the nearest District Office of the Department of Veterans Affairs or to the Student Counsellor, Student Counselling-Student Aid Office, McGill University.

WILLIAM JOHN DEY BURSARIES. — Bequeathed in 1950 by the late Mary Helena Dey in memory of her father, the Reverend William John Dey, M.A., D.D., (B.A.), Class of 1867, McGill University. Open to full-time undergraduates, both men and women, in all faculties and schools.*

STUART DUNN MEMORIAL SCHOLARSHIP. — Founded by the late Major Charles Gwyllym Dunn of Quebec City in memory of his son, Sergeant (Wireless Air Gunner) Stuart Dunn, R.C.A.F., a student at McGill University who died on active service in July, 1941. Preference given to a male student of the Protestant Christian faith whose home is outside the Island of Montreal. Consideration is given to: (a) the candidate's scholarship, character, personality, and quality of leadership, (b) his need of financial assistance, and (c) the general usefulness to the community of the special branch of study he proposes to follow.*

HENRY H. EKES BURSARY. — Established in 1971 by Mr. Peter B. G. Easton in memory of his late father, Mr. Henry H. Ekes, to provide an annual bursary to an academically deserving student with financial need.*

FAERMAN GRANT. — Established in 1964-65, awarded annually to a deserving student in any faculty or year.*

FEDERAL-PROVINCIAL LOANS AND BURSARIES. — Most Provinces join with the Federal Government in offering bursaries, loans, or bursary-loans to degree students in many faculties and schools, open to men and women on equal terms. Students who have been resident and domiciled in the Province of Quebec for one year should apply to the Student Aid Office, McGill University, for Registration cards, but not before May 1. Completed application forms must be received at the Service des Prêts et Bourses aux Etudiants in Quebec by September 30. For further particulars apply to the Student Counsellor, Student Counselling-Student Aid Office. Ontario bursaries and loans are tenable in all faculties except Religious Studies. Students coming from other provinces should inquire from the Provincial Departments of Education whether they are eligible to participate in any comparable scheme. See Section 2, for addresses.

BOB FINEBERG BURSARY. — Established in 1967 by the family and friends in memory of the late Bob Fineberg and Barbara Greenspoon to assist a needy and deserving student. Awarded annually by the Student Aid Office with the approval of the National Council of Jewish Women on the basis of financial need and academic standing.*

FROTHINGHAM BURSARIES. — Bequeathed in 1951 by the late Mrs. Harriet F. Miller, to provide bursaries for outstanding women students in any faculty.*

AARON AND MARY GOODMAN BURSARIES. — Established in 1963 to assist deserving students in any faculty.*

*Apply to Student Aid Office.

SCHOLARSHIPS

DR. WILLEM GRAFF BURSARY. — Established by Dr. R. W. Brockway of Brandon College to commemorate Professor Willem Graff's long service to the University. Awarded by the Student Aid Office on the recommendation of the Department of German to a worthy and deserving undergraduate or graduate student on the basis of scholarship and financial need.

BARBARA GREENSPOON BURSARY. — Awarded annually by the Student Aid Office to any student with preference given to a student with a penchant for Mathematics.*

H. E. HERSCHORN BURSARY. — Established under the will of the late H. E. Herschorn, N.P., B.A. 1911, B.C.L. 1914, for a deserving student, man or woman, studying for the B.Sc., B.A., M.D.,C.M., LL.B., or B.C.L. degree in the intermediate or any subsequent year of his or her course.*

HEWITT MEMORIAL BURSARY FUND. — A bequest from the late Frederick T. O'Reilly-Hewitt in memory of his parents, the late Frederick Daniel Hewitt and the late Maria Stenson Hewitt for bursaries. Open to students in the Faculty of Arts or to students in the Humanities and Social Sciences in the Faculty of Graduate Studies and Research. Awarded by the Student Aid Office on the basis of financial need and academic promise.*

M.A.U.T. — F. S. HOWES AWARD. — Established in 1964 by the McGill Association of University Teachers to mark the great contribution of Dr. F. S. Howes to the life of the University. Awarded by the Student Aid Office to assist a student of energy and promise who is in financial need to complete his studies. Preference is given to students in the Faculty of Graduate Studies and Research.*

CELIA AMDUR ISAACS MEMORIAL BURSARY. — Established in 1953 by the Montreal Section of the National Council of Jewish Women and Mr. I. Sydney Isaacs. Awarded by the Council upon the recommendation of the Student Aid Office.*

JOSEPH ALFRED JACOBSON MEMORIAL SCHOLARSHIP. — Established by the late Mr. Percy N. Jacobson and by Mrs. Jacobson in memory of their son, Flight-Sergeant Joseph Alfred Jacobson, of the Royal Canadian Air Force, who was killed in action on January 28, 1942. Open to men and women in any faculty on equal terms. Awarded on the basis of academic strength, interest in university sports, and financial need.*

KHAKI UNIVERSITY AND Y.M.C.A. MEMORIAL SCHOLARSHIP FUND. — The interest of this fund is awarded in scholarships subject to the following two conditions: (i) that the scholarships may be held only by undergraduates; (ii) that the preference is given to sons and daughters of soldiers: (a) who served in the war of 1914-18; (b) who served in the war of 1939-45.*

EMERY AND ERWIN KLINEMAN BURSARY. — Established by Mr. Myer Herschorn to provide bursaries for students in any faculty needing financial assistance to continue their studies.*

SARAH AND JOSEPH LAZARUS BURSARY. — Awarded to a student in financial need with satisfactory academic standing, preference being given to a student in the Program of Jewish Studies.*

FELIX LEOPOLD BURSARY. — Established in 1953 by Mr. Felix Leopold of Montreal and awarded to one or more needy students in any faculty, who must have a satisfactory academic record and be of good character.*

BELLA LIPKIN-COHEN MEMORIAL BURSARY. — Established in 1972 by Mr. Sydney Brown, and awarded annually to a needy student, preferably in the Faculty of Arts.*

NOURALLA LUTFY MEMORIAL BURSARIES. — Two bursaries, the bequest in 1958 of the late Mr. Nouralla Lutfy and a further donation from his son, Mr. John Lutfy. Awarded to deserving students in any faculty or school.*

CHARLES MARTIN BURSARY FUND. — Bequeathed in 1935 by the late Mrs. Lillie F. Martin in accordance with the wishes of her late husband, Alfred W. Martin, in memory of his father, Charles Martin. Awarded to students in any faculty on the basis of financial need.*

McGILL PHARMACY ALUMNI SOCIETY DR. WILLIAM H. HATCHER BURSARY. — Established in honour of Dr. William H. Hatcher. Open to deserving students. Preference given to initial or intermediate year B.A. or B.Sc. degree students who intend to study pharmacy after graduation and to students in the Department of Chemistry.*

McGILL STUDENT ENTREPRENEURIAL AGENCIES INC. BURSARY. — Established in 1970 to provide a bursary of at least $100 annually to a student who has financial need.*

McGILL U.N.T.D. BURSARY. — With the unification of the three branches of the armed services, the U.N.T.D. has ceased to exist. The income from this Fund is now used to supplement university bursary funds.*

J. R. S. McLERNON BURSARY FUND. — Endowed by the late Mr. J. R. S. McLernon to assist students with financial need and good academic standing. Open to students in any faculty or year who are Canadian citizens. The minimum amount of each award is $100.*

**Apply to Student Aid Office.*

GEORGE J. McMANUS MEMORIAL SCHOLARSHIPS. — Each has a minimum value of $100 and may be held by students who hold other scholarships and who have real financial need. Open to men or women in any year of any faculty who have high academic records and need financial help. The actual amount depends on the need of the student.*

NATHAN MENDELSSOHN BURSARIES. — A bequest of $10,000 from the estate of the late Nathan Mendelssohn, the annual income of which is to be used by the Student Aid Office for bursaries for students in need of financial assistance.*

DR. FREDERICK WILLIAM CHARLES MOHR SCHOLARSHIPS. — The income from a fund established under the will of the late Dr. F. W. C. Mohr is used for scholarships for needy students from communities within the Ottawa Valley District, the amount of each scholarship not exceeding $500 to any one student in any year.*

MONTREAL WOMEN'S CLUB ELIZA REID MEMORIAL BURSARY.

NATIONAL COUNCIL OF JEWISH WOMEN OF CANADA, MONTREAL SECTION, BURSARIES. — A limited number of bursaries valued normally at $100 each. Awarded by the Council after consultation with the Student Aid Office. Academic standing and financial need are considered in making the award. Although there is no legal obligation, the Council hopes that holders will, if possible, return the money at some future time so that other students may in their turn be helped through college.*

EDGAR R. PARKINS MEMORIAL SCHOLARSHIPS AND BURSARIES.

SAMUEL AND BESSIE PESNER BURSARY. — Established in 1967 to honour Mr. and Mrs. Pesner. Awarded annually by the Student Aid Office with the approval of the National Council of Jewish Women to a student in any faculty or year on the basis of financial need and academic standing.*

PROCTER & GAMBLE STUDENT BURSARY FUND. — The Procter & Gamble Company of Canada Limited has established a fund of $1,500 to assist needy students in any faculty or year who are of good academic standing. Recipients will normally be Canadian residents who expect to maintain permanent residence in Canada. The minimum award is $100 and may be held concurrently with other awards. The Company hopes that any student who benefits from the fund will later contribute to the general bursary funds of the University when financially able to do so.*

HELEN REYNOLDS BURSARY.

MURIEL V. ROSCOE BURSARY.

ST. ANDREW'S SOCIETY BURSARY. — Established by the St. Andrew's Society of Montreal, for a needy student, preferably of Scottish blood, proceeding to a degree.*

RAY AND BEN SCHECTER MEMORIAL BURSARY. — Established by Mr. Samuel H. Schecter in memory of his mother and father. While open to any needy student in any faculty preference shall be given to students from Africa or Asia.*

SERAINE GROUP IDA SEGAL MEMORIAL BURSARY. — Established in 1968 to assist needy men students in any faculty.*

SERAINE GROUP ESTHER WARD MEMORIAL BURSARY. — Established in 1956 to assist needy men students in any faculty.*

FREDERICK SOUTHAM KER BURSARY. — Established in 1941 by the late F. N. Southam in memory of his grandson, Frederick Southam Ker, who was killed in action on September 6, 1940. Open on equal terms to men and women of all faculties. Awarded to a student who gives promise of becoming a good citizen but is handicapped by lack of funds. Financial need, character, and academic record are all considered in making the award.*

TEMPLE EMANU-EL SISTERHOOD BURSARY. — Established in 1946 in memory of the men who lost their lives in the war of 1939-45. Open to men undergraduates in all faculties.*

UNIVERSITY BURSARIES. — Open to full-time degree course students in all faculties and schools. See general regulations in Section 2.

UNIVERSITY CHALLENGE BURSARY FUND. — Established in 1971 by $10,000 which was won by a McGill team comprised of Julius H. Grey, B.C.L. 3, William W. Kredentser, B.Sc. 3, Brian M. Schecter, B.A. 4, and Mrs. Faith E. Wallis, B.A. 4, who participated in the CTV Television Program "University Challenge". The annual income is to provide bursaries to academically deserving students with financial need.*

UNIVERSITY SCHOLARSHIPS. — After one year at McGill, University Scholarships may be awarded by the University Scholarships Committee to students in any year of any undergraduate faculty for exceptionally distinguished work in the regular University examinations. No application is required.

University Scholarships carry a nominal recognition ($100) of their outstanding achievement. Where there is financial need, however, winners should apply as soon as possible to the Student Aid Office for information and consideration.

Apply to Student Aid Office.

SCHOLARSHIPS

Two University Scholarships have special names, the James Eccles Scholarship, tenable in any year of any faculty, and the Frederick Smith Memorial Scholarship, tenable only in the Faculty of Medicine.

All University Scholarships are renewable if in the opinion of the University Scholarships Committee, the holders maintain a sufficiently high academic standing.

IBM — THOMAS J. WATSON MEMORIAL BURSARIES. — $1,000 annually, established by the International Business Machines Company Limited for financial assistance to needy undergraduates in any year of any faculty who are of good academic standing. May be held concurrently with other awards provided need exists.*

EDGAR WILSON AND MARGARET WILSON SCHOLARSHIPS. — Bequeathed in 1956 by the late Edgar Moles Wilson to provide the Edgar Wilson Scholarships for men and the Margaret Wilson Scholarships for women to assist them in obtaining higher education in any faculty. Awarded on the basis of academic merit and financial need. Awards will not exceed the annual tuition fees.*

ROY M. WOLVIN MEMORIAL BURSARIES.

WOMEN ASSOCIATES OF McGILL BURSARY. — Available each year to men and women students in any faculty. Scholarship and need determine the award. The winner is chosen by the Executive of the Women Associates of McGill from candidates recommended by the Student Aid Office and selected from the applicants for University bursaries.*

RICHARD WOOD MEMORIAL BURSARY. — An annual fund established in 1964 by the Laurentian Lanes Sportsman's Bowling League for deserving students in any faculty.*

4.1.2 PRIZES

DR. W. B. LEWIS PRIZE. — A prize of $300 is offered annually in a competition for an essay, written with a view to publication to produce an informative review of some topic of his choice involving more than a single scientific discipline and having relevance to a subject of potentially general concern, e.g. water pollution, growing amount of carbon dioxide in the atmosphere, etc. Open to undergraduates and graduate students of the University. Material should be carefully selected and properly presented. The judges will not read untidy manuscripts or newspaper clippings. Essays that have appeared in print are not ineligible if they have been published since October 15, 1972. No candidate may submit more than one entry, which must be typed and must reach the Secretary, University Scholarships Committee, Registrar's Office, before October 15, 1973. Winning entries will be retained by the University and filed in the McLennan Library. The competition is restricted to students who have not previously won this Prize. Awarded by the University Scholarships Committee.

CHESTER MACNAGHTEN PRIZES. — Two prizes, $125 and $50, offered annually in a competition for the best piece of creative writing in English submitted by an undergraduate student of the University, i.e., a story, a play, a poem, an essay, etc. Material should be carefully selected and properly presented. The judges will not read untidy manuscripts or a large number of newspaper clippings. Printed compositions are not ineligible if they have been published since March 1, 1973. No candidate may submit more than two entries, which must be typed and must reach the Secretary, University Scholarships Committee, Registrar's Office, before March 1, 1974. Winning entries will be retained and filed in the McLennan Library. The competition is restricted to students who have not previously won the First Prize. Awarded by the University Scholarships Committee.

McCHARLES PRIZE.

NEWCOMEN AWARD.

4.1.3 LOAN FUNDS
Open to Students in all Faculties

CANADA STUDENT LOAN PLAN. — Canadian students from provinces other than Quebec may apply for federal loans. Addresses for the nine provincial authorities administering this plan are listed in Section 2.

CANADIAN CLUB OF MONTREAL FIFTIETH ANNIVERSARY STUDENT AID FUND. — Established in November 1955 to commemorate the Club's Fiftieth Anniversary. The purpose is to foster patriotism by encouraging the study of the institutions, arts, literature, and resources of Canada, and the appreciation of matters of interest and concern to Canadians.*

BERTHA COHEN REVOLVING LOAN FUND. — Established to provide small, short-term loans to aid students in emergencies in any faculty. Administered by the Student Aid Office.

**Apply to Student Aid Office.*

MR. AND MRS. HENRY COHEN REVOLVING LOAN FUND. — Established in 1967 to mark the thirtieth wedding anniversary of Mr. and Mrs. Henry Cohen by their son, Mr. Howard T. Cohen, B.Com. 1961, and their son-in-law, Mr. Philip Goldsmith. Unrestricted.*

AMY FREEDMAN MEMORIAL LOAN FUND. — Established in 1968 by the parents and friends of the late Amy Freedman for the purpose of making emergency loans to needy students (already in course at McGill) in any faculty. Special consideration will be given to students who come from and are returning to developing countries.*

HERSCHORN LOAN FUND. — Established by the late Mr. H. E. Herschorn for the purpose of making loans to students in any faculty who would otherwise be unable to continue their studies.*

BERTRAM KIDD AND MARJORIE SHARP MEMORIAL LOAN FUND. — Established in 1968 by parents and friends in memory of Bertram Kidd and Marjorie Sharp and is available to any McGill students.*

J. B. LYNCH LOAN AND BURSARY FUND. — Established by Mr. J. B. Lynch, President of Siscoe Mines Limited, for loans or in some cases outright grants to needy students.*

JOHN HAROLD MacLAREN STUDENT LOAN FUND. — Established in 1965 by a bequest from the late John Harold MacLaren.*

MARTLET FOUNDATION LOAN FUND. — Established in 1954 by the Martlet Foundation for students with good academic standing and athletic ability who are in need of financial assistance. Apply to the Director of Athletics, Physical Education and Recreation.

MRS. M. DOROTHEA MILLAR LOAN FUND. — Established in 1956 to assist one or more students of either sex, graduate or undergraduate, to pursue studies or research at McGill.*

J. K. PRATT MEMORIAL LOAN FUND. — Established in 1952 in memory of the late Janetta K. Pratt who was Cashier at McGill from 1929 until her death in 1952.*

ROTARY CLUB OF OTTAWA STUDENT LOAN FUND. — For intermediate and final year students in any faculty, residents of Carleton County, Ontario, and attending universities throughout Canada. Annual loans will not exceed $250.*

ROYAL CANADIAN AIR FORCE BENEVOLENT FUND. — Students who served in the R.C.A.F. are eligible for assistance from this Fund which makes loans or outright gifts, depending on the special circumstances involved.*

HAROLD N. SEGALL LOAN FUND. — A donation in 1957 from the Jerry Segalls to assist deserving students in any faculty.*

STUDENTS' SOCIETY LOAN FUND. — Open to students in all faculties with good academic standing. Primary consideration given to the candidates' contributions to Students' Society activities.*

GEORGE E. TILLSON LOAN FUND. — Established in 1955 by Mr. George E. Tillson. Unrestricted.*

UNIVERSITY LOAN FUND. — A Student Loan Fund established to assist needy students in all Faculties. Loans are made normally only to students in upper years with good academic standing.*

GWYN WILLIAMS MEMORIAL LOAN FUND. — Established by friends and members of staff of McGill University in memory of Gwyn Williams in recognition of her many years of loyal and efficient service in the Administration Offices of McGill University.*

Open to Students in Agriculture

MACDONALD COLLEGE STUDENTS LOAN FUND.

Open to Students in Architecture

ISABELLA McLENNAN BURSARY AND LOAN FUND.

Open to Students in Arts or Science

McGILL SOCIETY OF ONTARIO LOAN FUND.

Open to Students in Dentistry

W. R. AIRD LOAN FUND.
COLLEGE OF DENTAL SURGEONS OF QUEBEC LOAN FUND.
KELLOGG FOUNDATION LOAN FUND.

Open to Students in Faculty of Education

NATIONAL COUNCIL OF JEWISH WOMEN LOAN FUND.
PROVINCIAL ASSOCIATION OF PROTESTANT TEACHERS LOAN FUND.
ST. GEORGE'S LOAN FUND.
STUDENT TEACHERS' SOCIETY LOAN FUND.

**Apply to Student Aid Office.*

Open to Students in Engineering

BENNETT EDUCATIONAL FUND.
CANADIAN INSTITUTE OF MINING AND METALLURGY MONTREAL BRANCH LOAN FUND.
FAIRBAIRN LOAN FUND.
GEORGE HENRY FROST FUND.
BERNARD LEVITON LOAN FUND.
MONTREAL WOMEN'S AUXILIARY OF THE CANADIAN INSTITUTE OF MINING AND METALLURGY LOAN FUND.
SCIENCE '25 MEMORIAL LOAN FUND.
WADDELL LOAN FUND
WICKENDEN LOAN FUND.

Open to Students in Law

LOUIS DE ZWIREK, Q.C., LOAN FUND.
A. FLEMING LOAN FUND.

Open to Students in Management

COMMERCIAL SOCIETY LOAN FUND.
MORTON J. WHITE LOAN FUND.

Open to Students in Medicine

MAUDE ABBOTT MEMORIAL LOAN FUND.
BORIGHT LOAN FUND.
BOSWELL JAMES LOAN FUND.
ALEC AND SYLVIA DOLLIN LOAN FUND.
KELLOGG FOUNDATION LOAN FUND.
LACEY LOAN FUND.
GERTRUDE MUDGE MEMORIAL STUDENT AID FUND.
WESTON FAY VOLBERG JR. MEMORIAL LOAN FUND.

Open to Students in Music

GLADYS GLASSCO MEMORIAL LOAN FUND.

Open to Students in the School of Nursing

KELLOGG FOUNDATION LOAN FUND.

Open to Students in Social Work

BERLINER STUDENT LOAN FUND.
PI BETA PHI LOAN FUND.
SOCIAL WORK ALUMNI LOAN FUND.
SOUTHAM STUDENT LOAN FUND.

McGill University no longer accepts endowments for awards which are restrictive in certain respects. However, there are some such funds endowed in the past which are still available.

Students who complete in detail the application form for financial aid, obtainable from the Student Counselling-Student Aid Office, will be considered automatically. The funds which are restrictive are the following:

GREEK STUDENTS BURSARY AND LOAN FUND. — Established in 1952 by a group of Greek merchants to assist Greek students attending McGill.

SIMON AND ROSALIE HALPERN MEMORIAL SCHOLARSHIP. — Value $400, and established by the late Dr. Fanny G. Halpern in memory of her parents. Open to students of Roman Catholic or Jewish faith, on the basis of distinguished academic standing and financial need. The holder in any one session may re-apply for the following year.*

ANNETTE S. HILL MEMORIAL BURSARIES. — Established in 1962 to assist young men of the Protestant faith and of good character from the Maritime Provinces or the Province of Ontario to obtain a college education.

HUNGARIAN CANADIAN ENGINEERS' ASSOCIATION BURSARY. — Students of Hungarian origin, who have had at least one year of successful study at a recognized university in Canada, may apply to the Hungarian Canadian Engineers' Association for financial aid.

McGILL HELLENIC CLUB BURSARIES. — One or more bursaries of $300 each for students of Greek descent (up to and including the third generation) in any faculty or year. Open to full-time students who have obtained second class standing and have financial need, and renewable upon application.

Apply to Faculty of Medicine

ANGUS McCOY SMITH SCHOLARSHIP. — $150, founded by the late Mr. Allan L. Smith and Mrs. Smith in memory of their son, Angus McCoy Smith, a McGill graduate, who was killed in World War II. Awarded to a Protestant male student of the Faculty of Arts or Science entering the Fourth year. Academic record, character, financial need, and general promise are considered.

CHARLES WILLIAM SNYDER MEMORIAL SCHOLARSHIPS. — Two scholarships of $200 each, founded by the late L. P. Snyder, Esq., in memory of his son, Charles William Snyder, a student of First year Arts who was killed in the Battle of Sanctuary Wood on June 2, 1916, awarded on the results of the sessional examinations. One is awarded on the recommendation of the Department of English to a student entering the Fourth year and taking full Honours in English and the other is awarded on the recommendation of the Departments concerned in the student's combined Honours program to a student entering the Fourth year and taking Honours in English and another subject. Open to Christian male students in the Faculty of Arts or Science.

SYRIAN CANADIAN ASSOCIATION BURSARIES. — A bursary fund available to any student of Syrian-Lebanese descent residing in (a) the Greater Montreal area; (b) the Province of Quebec; (c) Canada; with preference given to students in the above order. No restriction as to choice of faculty or year but preference is given to students entering the University. Awarded on the basis of good academic standing and financial need. The maximum amount granted to any one student is the equivalent of the student's tuition fees and the amount granted varies with the financial need of the student.

UNIVERSITY LODGE LOAN FUND. — A loan fund for Masons and the children of Masons attending McGill established by University Lodge No. 84 Q.R., A.F. and A.M. Loans will not exceed annual tuition fees. Open to qualified students in all faculties and years and awarded on need and academic merit.

4.2 OPEN TO STUDENTS IN THE FACULTY OF ARTS

For Entrance Scholarships, see Section 3. For scholarships and bursaries, open to undergraduates in all Faculties, see Section 4.1.

4.2.1 GENERAL REGULATIONS IN ARTS

1. No applications are required. The awards are made by the Arts Scholarships Committee on the basis of examination standings.

2. Unless restricted by the deed of gift or faculty regulations the awards are open to all students studying for the B.A. degree.

3. Normally only those students who have completed at least 30 credits in the year preceding the award will be eligible for scholarships.

4. Scholarships will be awarded only if an adequate standard is attained.

5. If in any university year there is not a sufficient number of candidates showing adequate merit, any one or more of the scholarships offered for competition may be given to more deserving candidates in another year.

6. In order to retain a scholarship a successful candidate must proceed regularly with a university course to the satisfaction of the Faculty.

4.2.2 SCHOLARSHIPS

CHARLES ALEXANDER SCHOLARSHIP. — Value $245, established in 1870 "for the encouragement of the study of Classics and other subjects."

MARGARET JANE ALLAN SCHOLARSHIP. — Bequeathed in 1929 to the Royal Victoria College by Mrs. Agnes W. Allan. Value $250, awarded annually to the woman student with the highest standing in the sessional examinations of the initial year of the B.A. course.

DR. BARCLAY SCHOLARSHIP. — Awarded in the Classics Department, value $140.

ROBERT BRUCE SCHOLARSHIP. — $100, tenable for two years, bequeathed by the late Robert Bruce, of Quebec City. Open to students in the Faculty of Arts, the Faculty of Science or the Faculty of Management and awarded for high standing in the examinations at the end of the initial year. Awarded by the University Scholarships Committee upon recommendations of the faculties concerned.

DOW-HICKSON SCHOLARSHIPS. — Annual value, not less than $1,000 each. Established in 1957 by a bequest from the late Dr. J. William A. Hickson and awarded to intermediate or graduating year Honours students in English Literature, Philosophy, or Psychology. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of the departments concerned.

MAURICE GOLDENBERG MEMORIAL SCHOLARSHIP. —Value $225, in Government, Constitutional Law, or Public Administration, established by Senator H. Carl Goldenberg, Q.C. in memory of his father, the late Maurice Goldenberg. Awarded annually by the University Scholarships Committee to the best candidate amongst those nominated by the Faculty of Arts and the Faculty of Law.

GREENBLATT SCHOLARSHIP. — $500 from a bequest of the late Mrs. Greenblatt, for a student proceeding from the intermediate year(s) to the graduating year, preference given to a student in Modern Languages (other than English) or in History. Awarded on recommendation by a committee selected from the Departments of History and of the Modern Languages.

KNIGHTS OF PYTHIAS SCHOLARSHIP. — $300, awarded annually to a male or female student in the Social Sciences who must be a resident of the Island of Montreal, and entering the intermediate year of the B.A. course. May be renewed for a further year if the holder proves worthy.

HANNAH WILLARD LYMAN MEMORIAL SCHOLARSHIP. — $240, awarded annually to a woman student of the intermediate or graduating year of the B.A. course.

SIR WILLIAM MACDONALD SCHOLARSHIPS. — Two scholarships of $500 each, open to all students in the intermediate and graduating years.

ALEXANDER MACKENZIE SCHOLARSHIPS. — Two scholarships of $250 each, awarded on the results of the Honours examinations in Political Science. One award will be held by a student entering the graduating year and one for a student entering the intermediate year. Students must take the Honours work in Political Science.

JAMES DARLING McCALL SCHOLARSHIP. — $750 founded by the late J. T. McCall, Esq., in memory of his son, James D. McCall, B.Sc., who was drowned shortly after the war of 1914-18, in which he served with distinction. Awarded to a male graduating student who is taking Honours in English and/or Philosophy.

McGILL ALUMNAE SCHOLARSHIPS. See Section 4.16.4.

PETERSON MEMORIAL SCHOLARSHIPS IN CLASSICS. — Two scholarships of $550 each, founded in memory of Sir William Peterson, Principal of McGill 1895-1918, by his son, W. G. Peterson, M.A. Open to students in any year.

PRINCE OF WALES SCHOLARSHIP. — $150, open to students proceeding from the intermediate year(s) into the graduating year. Awarded for general distinction by the Faculty of Arts on the student's complete academic record and on recommendations from departments in which they have taken their courses.

JANE REDPATH EXHIBITION. — Value $170, founded by the late Mrs. Redpath, to maintain an exhibition in Arts or Science. Awarded on the results of the sessional examination of the initial year to the student with the highest average on the year's work. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of each faculty.

REFORD SCHOLARSHIP. — The interest on this fund, about $400 per annum, is equally divided and placed at the disposal of the Departments of English and Philosophy.

BARBARA SCOTT SCHOLARSHIP. — Value $275, bequeathed by the late Barbara Scott for the student "excelling in Classics in the initial year."

SHAKESPEARE SCHOLARSHIP. — $100, for a student advancing to the graduating year with special distinction in English Honours courses. Awarded by the Faculty of Arts on the recommendation of the Department of English.

UNIVERSITY SCHOLARSHIPS. See Section 4.1.1.

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES. — Two scholarships of $375 each and a number of bursaries are given by Mrs. Roy M. Wolvin in memory of her husband. One scholarship is restricted to men undergraduates in the Faculty of Engineering, which is awarded by the Faculty Scholarships Committee. The other scholarship is restricted to women undergraduates in the Faculty of Arts, the Faculty of Science, or the Faculty of Management, and is awarded by the University Scholarships Committee upon recommendations of the faculties concerned. The bursaries are open to students in any undergraduate faculty who have a good academic record and need financial assistance. Apply for bursaries to the Student Aid Office.

4.2.3 BURSARIES

ROBERT BRUCE BURSARIES. — Several bursaries of $100 each are open each year to "young men and women of promising abiilties but of straitened circumstances in Arts, Science, or Engineering."*

MR. AND MRS. SAMUEL CAMPBELL BURSARY.— See Section 4.1.1.

**Apply to Student Aid Office.*

DELTA PHI EPSILON SORORITY BURSARY. — Value $100, founded in memory of Edith Silver. Open to a deserving woman student entering the penultimate year of the Faculty of Arts or of Science.*

ROSE AND HARRY ENGELS BURSARY. — $100 to be awarded annually by the Student Aid Office to any undergraduate B.A. student in the Faculty of Arts.*

HEWITT MEMORIAL BURSARY FUND. — See Section 4.1.1.

HOUSTON BURSARY. — See Section 4.13.

HON. ROBERT JONES BURSARY. — One or more bursaries not exceeding $250 each in any one year are granted to needy students in the Faculty of Arts, Science or Engineering.*

BELLA LIPKIN-COHEN MEMORIAL BURSARY. — See Section 4.1.1.

4.2.4 PRIZES

E. R. ADAIR HISTORY PRIZE. — $25 in books, established by the Montreal Historical Association and awarded to the student achieving the highest standing in History in the initial year.

AUSTRIAN GOVERNMENT PRIZE. — A book prize for a student who has excelled in German.

HARRY BARKER MEMORIAL PRIZE IN ENGLISH. — Value $150, bequeathed by the late Miss Dinah Lee in memory of the late Mr. Harry Barker, awarded to the student with the highest standing in English in an initial year. Awarded on the recommendation of the Department of English, to whichever Faculty Scholarships Committee is appropriate.

HENRY CHAPMAN PRIZE. — A book prize of the value of $65 is given in Modern Languages (excluding English), or in Hebrew.

CHERRY PRIZES. — Two prizes in books of $100 each, founded by Wilbur H. Cherry, Arts 1907, and Anna Cherry, Arts 1918, in memory of their father, William Cherry, Med. 1869, and of their brother, William McFie Cherry, Arts 1911, awarded on the recommendation of the Departments of Economics or of Political Science to deserving students.

CORPORATION OF PSYCHOLOGISTS OF THE PROVINCE OF QUEBEC PRIZE. — A prize of $10 offered annually by the Corporation to a student in the final year who has done the most distinguished work in Psychology throughout the course. Awarded on the recommendation of the Department of Psychology, to whichever Faculty Scholarships Committee is appropriate.

MARION McCALL DALY PRIZE. — See Section 4.16.3.

OSCAR EKES MEMORIAL PRIZE. — Value $100, established in 1972 by Mr. Peter B. G. Easton, B.A. 1971, in memory of his uncle, Mr. Oscar Ekes. Awarded by the Scholarships Committee of the Faculty of Arts on the recommendation of the Department of Economics to an outstanding economics student.

ISIDORE FINKELSTEIN PRIZE. — Value $100, established in 1973 for a five-year period by Mrs. I. Finkelstein in memory of her late husband, Isidore Finkelstein. Awarded annually by the Scholarships Committee of the Faculty of Arts on the recommendation of the Department of History to the full honours history student graduating with the highest mark.

DORA FORSYTH PRIZE. — $125, bequeathed by the late Miss Jeanie Forsyth for English Literature. Open to women students only and awarded to a candidate recommended by the Department of English and approved by the Faculty of Arts.

THE FRENCH GOVERNMENT'S BOOK PRIZES. — Three book prizes to be awarded to three students of the Department of French Language and Literature in their graduating year for excellence in the study of French Language and Literature.

GERMAN EMBASSY PRIZE. — A book prize for excellence in German.

HISTORICAL SOCIETY'S PRIZE. — A book prize of $50, awarded jointly by the Executive of the Historical Society and the Chairman of the Department of History to the undergraduate in the initial year showing the greatest promise in History and intending to read for Honours in this subject.

MADELENE HODGSON PRIZE IN HISTORY. — Value $40, endowed by the I.O.D.E. in recognition of the work done by the late Mrs. W. C. Hodgson as President of the Provincial Chapter of Quebec. Awarded to the intermediate year Honours student in History by the Department of History for the most outstanding work in this subject.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2.

CHESTER MACNAGHTEN PRIZES. — See Section 4.1.2.

McGILL HELLENIC CLUB PRIZE IN MODERN GREEK. — An annual prize of $150 to the student obtaining the highest overall first class standing in the first years of study of Modern Greek.

NEWCOMEN AWARD. — The Newcomen Society in North America offers a prize of $200 known as the Newcomen Award for a student at McGill who writes an outstanding paper on some facet of Industrial History. Entries must be submitted to the Chairman of the Department of Economics on or before April 1.

Apply to Student Aid Office.

BORIS MUSKATOV PRIZE IN PSYCHOLOGY. — An annual prize of $85 in books has been endowed by Miss Serafina Muskatov in memory of her brother, Boris Muskatov, who died on January 9, 1948, while a student. This prize is offered to a student who has completed the penultimate year in the Faculty of Arts or of Science and has done the best work in the subject of Psychology. Awarded on the recommendation of the Department of Psychology, to whichever faculty scholarships committee is appropriate.

PETERSON MEMORIAL PRIZE IN ENGLISH LITERATURE. — Value $50, founded by W. G. Peterson, M.A. in memory of his father, Sir William Peterson, Principal of McGill, 1895-1918, awarded to the undergraduate, or graduate student with distinction in English Literature who has also shown creative literary ability.

NORMAN A. PRENTICE MEMORIAL PRIZE. — Value $300, established by Mrs. Norman A. Prentice in memory of her late husband, Norman A. Prentice, Arts '10. Awarded to a student of high standing proceeding from the intermediate to graduating year in the General or Major B.A. program. Preference is given to students who have included French and/or History among their subjects.

PRIZE OF THE AMBASSADOR OF SWITZERLAND IN CANADA FOR FRENCH. — A book prize for excellence in the graduating year in French Language and Literature.

PRIZE OF THE AMBASSADOR OF SWITZERLAND IN CANADA FOR GERMAN. — A book prize for excellence in German for the graduating year, awarded by the Faculty of Arts on the recommendation of the Department of German to an undergraduate whose mother tongue is not German.

PRIZE OF THE AMBASSADOR OF SWITZERLAND IN CANADA FOR ITALIAN. A book prize for excellence in the graduating year in Italian.

PRIZE OF THE AMBASSADOR OF YUGOSLAVIA IN CANADA. — A book prize for the best student in the language, literature or civilization of one of the peoples of Yugoslavia (principally Serbo-Croatian). Open to undergraduate or graduate students and awarded on the recommendation of the Department of Russian and Slavic Studies.

PRIZE IN ANCIENT GREEK. — One or more prizes with a minimum value of $100 each may be awarded annually for proficiency in Ancient Greek to students entering any year of the Faculty of Arts.

PRIZE IN LATIN. — One or more prizes with a minimum value of $50 each may be awarded annually for proficiency in Latin to a student or students in any year of the Faculty of Arts. Awarded by the Faculty of Arts on the recommendation of the Chairman of the Department of Classics.

JAMES D. ROSS PRIZE. — $25 Book Prize, established by the former colleagues and friends of the late Professor James D. Ross. To be awarded by the Department of Philosophy to the outstanding student in the penultimate year of the Honours Philosophy Program.

LIONEL SHAPIRO AWARD IN ENGLISH. — $1,000 is awarded by the Scholarships Committee of the Faculty of Arts on the recommendation of the Department of English to one or more students in the B.A. course who are completing their graduating year and have demonstrated outstanding literary talent. The total awarded will not exceed $1,000.

CORINNE FAY TABAC MEMORIAL PRIZE IN ENGLISH LITERATURE. — An annual prize of $50 donated by Mr. Steven T. Tabac in memory of his wife Corinne Fay Tabac, a former student at Macdonald College. Awarded to the winner of the Shakespeare Gold Medal.

WOMEN'S PERSONNEL GROUP OF MONTREAL BOOK PRIZE. — A book prize of $25 made available in alternate years to McGill and to the University of Montreal. At McGill the selection is made by the Director of the Industrial Relations Centre in consultation with the appropriate departments in the Social Sciences and awarded to the woman student in any year of the Faculty of Arts or the Faculty of Management who shows the most promise and intends to continue, either at the University or in industry, in the general field of Personnel and/or human relations. The award will be available at McGill in 1968 and thereafter biennially.

WOODHEAD MEMORIAL PRIZE IN GREEK AND LATIN. — $100, presented by the Wiegand Memorial Foundation Inc., in honour of the late William Dudley Woodhead, Hiram Mills Professor of Classics and Chairman of the Department from 1925-1950, awarded to the student in Honours Greek and Latin of the intermediate or gaduating years, who, in the opinion of the Department, has done the best work in this field.

4.2.5 MEDALS

The following medals are awarded to the graduating students who stand highest in the First Class Honours List of the subjects named, provided the Faculty so recommends to Senate:

THE HENRY CHAPMAN GOLD MEDAL, for Classical Languages and Literature.

THE FRENCH GOVERNMENT'S BRONZE MEDAL, for excellence in French in the general or Honours course.

In addition to the above, certain medals are offered annually by L'Alliance Française, at the discretion of the Department of French.

If there is no candidate for any medal, or if none of the candidates fulfils the required conditions, the medal is withheld, and the proceeds of its endowment for the year may be devoted to prizes in the subject for which it was intended.

THE GOVERNOR-GENERAL'S GOLD MEDAL, for Modern Language and Literature.

THE GOVERNOR-GENERAL'S SILVER MEDAL, awarded to the student standing highest among those graduating "with great distinction" in a major or faculty program of the Faculty of Arts or of Science. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of the faculties concerned.

THE ALLEN OLIVER GOLD MEDAL, for Economics and Political Science (founded by Mrs. Frank Oliver, in memory of her son, the late Allen Oliver, M.C., B.A., Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme, on November 18, 1916).

THE PRINCE OF WALES GOLD MEDAL, for Mental and Moral Philosophy.

THE SHAKESPEARE GOLD MEDAL, for English Language and Literature.

4.2.6 LOAN FUNDS

McGILL SOCIETY OF ONTARIO LOAN FUND. — Established in 1938 by the Ontario Branch of the Graduates' Society of McGill.*

4.3 OPEN TO STUDENTS IN THE FACULTY OF DENTISTRY

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.3.1 SCHOLARSHIPS

INTERNATIONAL COLLEGE OF DENTISTS (CANADIAN SECTION) SCHOLARSHIP. — $100, awarded by the Faculty of Dentistry to a student who is proceeding to the Fourth year. Awarded on scholastic record in the Third year, general character, and participation in extra-curricular activities. No application required. (1973-74 award is not definite.)

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.3.2 PRIZES AND MEDALS

First year:

Prizes will be awarded for first and second place overall standing.

Second year:

Prizes will be awarded for first and second place overall standing; and for highest standing in the Basic Sciences and in Dental Anatomy and Applied Sciences over the two year period.

Third year:

Prizes will be awarded for first and second place overall standing.

Fourth year:

Medals will be awarded for first, second and third place overall standing in the four years of the course.

Prizes will be awarded for highest standing in the Basic Sciences and Oral Medicine; and, in Preventive and Restorative Dentistry.

The details of these awards are presently under review and further information will be available in the 1974-75 announcement.

4.3.3 LOANS FUNDS

W. R. AIRD LOAN FUND. — Established in 1952 for students in Dentistry.*

COLLEGE OF DENTAL SURGEONS OF QUEBEC LOAN FUND. — Established in 1958 by the College of Dental Surgeons of the Province of Quebec to aid students in the Second and upper years in the Faculty of Dentistry. Such students must be registered with the College of Dental Surgeons of the Province of Quebec and loans shall not exceed the tuition fees for the year.*

KELLOGG LOAN FUND. — A sum of money has been placed at the disposal of the Faculty of Dentistry by the Kellogg Foundation to assist dental students who have real financial need and are not eligible for assistance under other bursary and loan schemes.*

OTHER LOAN FUNDS. — See Section 4.1.

Apply to Student Aid Office.

4.4 OPEN TO STUDENTS IN THE FACULTY OF EDUCATION

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.4.1 SCHOLARSHIPS

For Entrance Scholarships, see Section 3.

RONALD BRIGDEN MEMORIAL SCHOLARSHIP. — Awarded annually to graduates from schools on the South Shore whose staff members are represented by the St.Lawrence Richelieu Teachers' Association. Candidates must be in the Faculty of Education. Value $200. Apply to President, Ronald Brigden Memorial Scholarships S.R.T.A., Box 175, St. Lambert, P.Q.

ELLA BRYSON SCHOLARSHIP. — Offered to a student entering the Faculty of Education from Fort Coulonge Protestant School. Apply to Secretary, Women's Institute, Fort Coulonge, P.Q., before May 1.

SARAH EMMA HILL SCHOLARSHIP. — Endowed by the late Mrs. Sarah Emma Hill, of Stanstead, Que., and awarded each year to a student in the Faculty of Education "where assistance is required." Scholarship and indication of professional ability will be considered. Applications must be submitted by August 15.*

ESTELLA HOLMES SCHOLARSHIP. — $100 offered by the Women's Institute of Stanstead County to a student from Stanstead County who is entering the Faculty of Education. Apply, not later than July 1, to the Convenor of Education of the Stanstead County Women's Institute whose name may be obtained from the Principal of the applicant's school.

A. S. LAMB SCHOLARSHIPS. — Three scholarships of $300 each, endowed by friends of Dr. Arthur S. Lamb, formerly Director of the School of Physical Education and of the University Department of Athletics, Physical Education and Recreation, as a tribute to his work in these fields. Awarded to students entering the intermediate or final year of the Bachelor of Education (Physical Education) course. One scholarship is awarded on academic record and personal qualities. Financial need is also considered in awarding the other two scholarships. No application necessary.

MACDONALD TEACHERS' ALUMNI ASSOCIATION SCHOLARSHIP. — Value $100, awarded to the best all round student by the Dean of the Faculty of Education and the President of the Alumni Association. The Scholarship must be used to further the winner's educational studies. When circumstances permit, two scholarships are offered in the same year.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.4.2 BURSARIES

PHYLLIS A. AITKEN BURSARY. — Value $700, awarded annually for a five-year period to a student or students in the Bachelor of Education program entering the intermediate or final year. Preference will be given to applicants who are planning to teach in one of the sciences or a language other than their natural language. Awarded by the I.O.D.E. on the recommendation of the Faculty of Education on the basis of financial need. May be renewable.

ELIZABETH MILLAR COSENS BURSARY. — To be awarded annually to a woman in the intermediate or final year of the degree course in Physical Education. The award will be made on the recommendation of the Faculty of Education without restriction as to race, creed, colour or nationality on the basis of academic record, motivation and financial need with primary concern being given to academic proficiency.

DELTA KAPPA GAMMA SOCIETY ALPHA CHAPTER GRANT-IN-AID. — A $250 grant-in-aid to a woman candidate for the 1st class diploma who has evidenced academic ability and who shows promise of making a contribution to the teaching profession. Applications must be submitted by August 15.*

FRUEHAUF TRAILER BURSARY FUND. — The Fruehauf Trailer Company has established a bursary fund for the purpose of aiding Physical Education students in the intermediate and final year of the Faculty of Education to complete their courses. No applications necessary.

I.O.D.E. BURSARIES. — The Municipal Chapter I.O.D.E. offers two bursaries $350 and $200, tenable in the Faculty of Education. Awarded by a committee of the Chapter on scholarship and need. Apply to the Educational Secretary, The Municipal Chapter of Montreal, I.O.D.E., 5475 Côte St. Antoine, Montreal 260, P.Q.

KAY KERRY CHAPTER I.O.D.E. BURSARY. — A bursary of $300 offered to a student resident in Pointe Claire or Beaconsfield, with preference given to students in the Faculty of Education. Apply to Chairman, Bursary Committee, Kay Kerry Chapter, I.O.D.E., 233 Allancroft Crescent, Beaconsfield, Que., not later than March 1.

**Apply to Student Aid Office.*

KIWANIS CLUB OF LAKE OF TWO MOUNTAINS BURSARY. — $150, tenable by a student in the Faculty of Education residing in the counties of Vaudreuil-Soulanges including Ste. Anne de Bellevue and Senneville. Apply to the Secretary, Kiwanis Club of Lake of Two Mountains, P.O. Box 96, Dorion, Quebec, before September 30.

MONTREAL WOMEN'S CLUB ELIZA REID MEMORIAL BURSARY. — Founded in 1927 by the Montreal Women's Club in memory of its First President, Mrs. Robert Reid, to provide a Bursary for a student needing financial assistance to continue his studies. Preference will be given to students in the Faculty of Education.*

PROVINCIAL ASSOCIATION OF PROTESTANT TEACHERS BURSARIES. — A number of bursaries offered on the basis of scholarship and need. Apply to the Executive Director, Provincial Association of Protestant Teachers, 245 Hymus Blvd., Pointe Claire 730, P.Q.

JANET MORISON ROBB BURSARY FOR WOMEN. — The income for one year from an endowment of $2,000, established by the late Hon. James A. Robb, formerly M.P. for Chateauguay-Huntingdon and Minister of Finance, Canada, in memory of his daughter, Janet Morison Robb, wife of Hugh Harvie Donald. Preference is given to women students resident in either of the counties of Chateauguay-Huntingdon, or Beauharnois, who are daughters of widows or widowers of limited or moderate means, or daughters of disabled Canadian soldiers who have seen active service. Open to students in the Faculty of Agriculture, the School of Food Science, or the Faculty of Education and awarded by the Faculty of Agriculture Scholarships Committee. Students in the Faculty of Education should apply to the Student Aid Office before August 15.

VERDUN WOMEN'S CLUB HARRIET MORRIS MEMORIAL BURSARY. — Value $100, tenable for one year. Awarded in memory of the co-founder of the Club, Harriet Morris, on the basis of academic record, character, and financial need, to a woman student entering the Faculty of Education who is a graduate of Verdun Protestant High School.

4.4.3 MEDALS

GOLD MEDAL. — Awarded to the student demonstrating the highest general proficiency throughout the B.Ed. (P.E.) course.

GOVERNOR-GENERAL'S MEDAL. — Presented by His Excellency the Governor-General of Canada. Awarded to the teacher-in-training with the highest standing in the Art of Teaching.

STRATHCONA TRUST MEDALS. — Awarded to the man and the woman standing highest in the initial year and to the man and the woman standing highest in the intermediate year of the Physical Education course.

4.4.4 LOAN FUNDS

NATIONAL COUNCIL OF JEWISH WOMEN LOAN FUND. — Established for the purpose of aiding students in the Faculty of Education to complete their courses.*

PROVINCIAL ASSOCIATION OF PROTESTANT TEACHERS LOAN FUND. — Loans of not more than $300 per annum with priority to students applying for the first time and to those not eligible for other bursaries. Loans repayable when the student begins teaching. Apply to the P.A.P.T., Professional Loans Committee, 245 Hymus Blvd., Pointe Claire 730, P.Q.

ST. GEORGE'S LOAN FUND. — Established in 1955 by a donation of $500 to assist students registered in the Faculty of Education.*

STUDENT TEACHERS' SOCIETY LOAN FUND. — Established in 1954 by a donation from the Student Teachers' Society to assist students registered in the Faculty of Education. Additional donations supporting this fund have been received from the following sources: I.O.D.E. Ethel Walkem Joseph Fund, Gardner Kneeland Fund, Milton Hersey Fund, Dr. S. P. Robins Fund, and J. C. Wilson Fund.*

4.5 OPEN TO STUDENTS IN THE FACULTY OF ENGINEERING (Including Architecture)

For Entrance Scholarships, see Section 3.
For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.5.1 GENERAL REGULATIONS IN ENGINEERING

1. Only full-time students are eligible for scholarships.
2. Scholarships will be awarded only if an adequate standard is attained.

**Apply to Student Aid Office.*

4.5.2 SCHOLARSHIPS

AMERICAN SOCIETY FOR METALS SCHOLARSHIP. — $600 offered by the Montreal Chapter of the American Society for Metals to a student in any year of the Metallurgical Engineering course. Awarded by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Department of Metallurgical Engineering on the basis of academic standing, engineering promise, and financial need.

BAYLIS SCHOLARSHIP. — Value $290, founded in memory of Mr. and Mrs. James Baylis of Montreal. Awarded to a student entering the Second year who is in need of financial assistance and will be renewed if the student maintains satisfactory standing. Apply through the Dean of the Faculty.

CANADIAN PITTSBURGH INDUSTRIES SCHOLARSHIP. — $250, awarded to a student of the School of Architecture submitting the best solution of a design problem in Design and Construction IV in which glass is a major item. The judges are a committee of staff of the School of Architecture.

E. G. M. CAPE AND COMPANY (1956) LTD. AWARD. — $250, for a student who has completed the First year of the Civil Engineering course and is entering the Second year. Awarded by the Scholarships Committee of the Faculty of Engineering on the basis of high scholastic standing, activity in extra-curricular work and student engineering society affairs, and construction engineering promise. All other factors being equal financial need will be considered.

CENTRAL MORTGAGE AND HOUSING CORPORATION TRAVELLING SCHOLARSHIPS. — Awarded annually to an undergraduate planning to enter the B.Arch. program. One student in each Canadian School of Architecture is chosen on the basis of scholastic achievement and marked interest in housing as shown by his work. The group travels to selected locations in Canada, the U.K. or the U.S.A. for a period of four to five weeks to study examples of residential environment and housing design. The tour is conducted by a member of staff of one of the Schools. Travelling expenses are paid by the scholarship fund. Following the tour, each student will be employed at the Head Office of C.M.H.C. for the balance of the summer at normal rates of pay. A paper upon the summer's tour and work must be submitted. On receipt of the paper by C.M.H.C., the student will receive $500. These awards are available only to Canadian citizens or landed immigrants in Canada. Applications must be received by the Director of the School by March 1. Selection is made by a Committee of Staff of the School of Architecture.

COMINCO SCHOLARSHIPS. — To assist in ensuring a continuing supply of qualified graduates in fields vital to industry in Canada, Cominco Ltd. has established a program of twenty-four scholarships at specified Universities in Canada to assist students in financing the final two years of their undergraduate course. Two of these scholarships are awarded annually in the form of two-year awards of $800 each per year at McGill University by the University Scholarships Committee upon the recommendations of the Departments concerned. Open to students who in the fall will enter the penultimate undergraduate year of a course leading to a degree in Honours Geology, Chemical Engineering, Geological Engineering, Mining, Mineral Engineering, Mechanical Engineering, Metallurgy, Metallurgical Engineering, Soil Science, or Agronomy. Renewals for the second year will be subject to attainment of academic standards satisfactory to the University Scholarships Committee.

CYANAMID OF CANADA LIMITED SCHOLARSHIP. — Value $600, established by Cyanamid of Canada Limited for a student whose scholastic standing and attendant attributes make him worthy of financial assistance. Awarded by the Scholarships Committee of the Faculty of Engineering, with preference being given to students in Chemical Engineering.

SIR WILLIAM DAWSON SCHOLARSHIPS IN METALLURGY. — A research and teaching graduate award of $1,800, or one or more undergraduate awards totalling $1,800, in the Department of Metallurgical Engineering, endowed in memory of the late Sir William Dawson, Principal of McGill University from 1855 to 1893. If, in any particular year, the Department has no candidate and for that same year the Department of Mining Engineering and Applied Geophysics has a suitable candidate for whom no fellowship is available this fellowship shall become available to the Department of Mining Engineering and Applied Geophysics.

DOW CHEMICAL OF CANADA SCHOLARSHIP. — $500 for a student in the final year of Chemical Engineering, awarded by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Chairman of the Department of Chemical Engineering, subject to the following conditions: the student (1) must have a sincere interest in the Chemical Industry; (2) must be in the upper half of the class; (3) must demonstrate some leadership in extra-curricular activities; (4) must be "personable"; (5) must not hold another scholarship.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS. — (See Section 3.2.)

NEVIL NORTON EVANS SCHOLARSHIP. — Value $200, established in 1937 by graduates of the Faculty of Applied Science (Engineering) to commemorate the work of Professor Nevil Norton Evans, formerly Professor of Chemistry. Open to students in Engineering who show outstanding ability in Chemistry. Awarded by the Faculty of Engineering and the Department of Chemistry.

R. P. D. GRAHAM SCHOLARSHIPS AND MEDAL. — Endowed by former students of Dr. R. P. D. Graham, Professor Emeritus of Mineralogy, and available to students entering an intermediate year or the Final year of the B.Sc. course and to students entering the Second or Third year of the Mining Engineering course. Awarded by the University Scholarships Committee upon recommendations of the chairmen of the Departments of Geological Sciences and Mining Engineering and Applied Geophysics. A bronze medal bearing a likeness of Professor Graham is given to the most highly qualified student receiving one of these awards.

THOMAS LEEMING HARRISON AWARD. — $250, for a student who has completed the Second year of the Civil Engineering course with high scholastic standing and who is entering the final year. Awarded by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Chairman of the Department of Civil Engineering and Applied Mechanics.

WILLIAM HENRY HOWARD SCHOLARSHIPS. — Three scholarships of $900 each bequeathed in 1955 by the late Mrs. Florence P. Howard in memory of her husband. Open to undergraduate and graduate students in Metallurgy, Chemical Engineering and Geology. Awarded and renewable by the University Scholarships Committee upon the recommendations of the Departments concerned for scholastic ability and general promise.

INCO PARTICIPATING SCHOLARSHIPS. — The International Nickel Company of Canada, Limited, provides annually fifty awards at Canadian universities to students who in the fall will enter the penultimate undergraduate year of a course leading to a degree in Chemistry, Geology (including Geophysics and Geochemistry), and Chemical, Civil, Electrical, Mechanical, Metallurgical and Mining Engineering. Each award covers tuition fees plus a grant of $300 for miscellaneous expenses and a grant-in-aid of $500 to the department. Recipients may also request to undertake a summer orientation program with the Company in operations allied to their field of study. Renewed for one additional year provided student satisfies the requirements for the award. Students must be recommended by the department, and no more than two applications will be considered from each department of any university. Further information may be obtained from the Registrar's Office. Applications must be submitted by January 15.

IRON ORE COMPANY OF CANADA SCHOLARSHIPS. — Two scholarships of $500 each, open to students entering the Second or Third year in Mining, Metallurgical, Electrical, Mechanical, Civil, Chemical or Geological Engineering. Awarded by the Scholarships Committee of the Faculty of Engineering on the basis of academic ability, personality, need, and general promise.

JENKINS BROS., LTD., SCHOLARSHIP. — $200, open to all Engineering students entering the Third year in September and awarded on the basis of academic standing and personality.

JOHNSON WAX SCHOLARSHIP. — Total value of $2,400 ($800 a year for three years), awarded each year to a student who is entering the First year course in Chemical Engineering. Awarded by the Faculty of Engineering and is renewable until the holder graduates provided his or her academic standing is sufficiently high. Awarded mainly on the basis of academic standing but general qualifications for the engineering profession and need for financial help are also considered. No applications necessary.

HARRY KRASHINSKY SCHOLARSHIP. — Value $1,000, established by the Corporation of Engineers of Quebec for Québec students finishing their penultimate year in Engineering. Applicants must submit a curriculum vitae, which should emphasize past and present activities in university and community affairs, and an essay not exceeding 500 words on the theme "The Role of the Engineer in the Community". Applications must be submitted by February 1. For further information apply to Registrar's Office.

FREDERIC J. LE MAISTRE AWARD. — Value $200, awarded annually to a worthy student in the penultimate year of the undergraduate program in Chemical Engineering. Awarded by the Faculty Scholarships Committee on the recommendation of the Department of Chemical Engineering.

H. M. MACKAY MEMORIAL SCHOLARSHIP. — Value $300, established in 1932 as a memorial to the late Henry M. Mackay, formerly Dean of the Faculty of Engineering. Awarded by the Faculty Scholarships Committee to a Canadian citizen or landed immigrant entering the First year in Engineering on the results of the D.E.C. examinations or equivalent.

MR. AND MRS. T. R. McLAGAN SCHOLARSHIPS. — Two awards covering tuition fees for outstanding students entering the final year of Electrical Engineering and Mechanical Engineering (one in each department) who are judged to be the best in terms of academic performance, leadership and citizenship. In cases where two or more students are judged equal on this basis, the financial needs of the candidates shall be considered and preference given to the student whose need is greatest.

MONTREAL WOMEN'S AUXILIARY OF THE CANADIAN INSTITUTE OF MINING AND METALLURGY SCHOLARSHIP. — Value $600, open to undergraduate or graduate students in Geology, Metallurgical Engineering, Mining Engineering, or allied subjects.

SCHOLARSHIPS

QUEBEC IRON AND TITANIUM CORPORATION SCHOLARSHIPS. — Two scholarships of $500 each open to students who have completed their First and Second years in Metallurgical Engineering at McGill University. Further information may be obtained from the Chairman of the Department of Metallurgical Engineering.

PROVINCE OF QUEBEC DEPARTMENT OF NATURAL RESOURCES SCHOLARSHIPS. — The Department of Natural Resources of the Province of Quebec offers bursaries to enable students to take a university course in mining engineering or metallurgical engineering. Their maximum annual value is $650 for a student who lives away from home in order to attend the university, and $400 for a student who lives at home. Candidates must be Canadian who have lived for at least five years in the Province of Quebec. Further information may be obtained from the Secretary, Scholarships Committee, Quebec Department of Natural Resources, Parliament Buildings, Quebec, Que. Also open to graduate students in Metallurgy, Mining, Engineering, and Geology.

GORDON SPROULE MEMORIAL SCHOLARSHIP. — $600, offered by the Montreal Chapter of the American Society for Metals to a student in the penultimate year of the Metallurgical Engineering course. Established in memory of Gordon Sproule, a member of the staff of the Department of Metallurgical Engineering from 1918 to 1953, in appreciation of his ability and his many services to the Society. Awarded by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Department of Metallurgical Engineering on the basis of academic standing, engineering promise, and financial need.

UNIVERSITY SCHOLARSHIPS (see Section 4.1).

WELDON AWARD. — Value $500, established by a bequest from the late Richard Laurence Weldon. Awarded by the Faculty Scholarships Committee on the recommendation of the Department of Mechanical Engineering.

STUART ALBERT WISDOM MEMORIAL SCHOLARSHIP. — Value $400, established in 1953 by Mrs. Stuart Albert Wisdom as a memorial to her late husband (B.Sc. (Mining and Metallurgy), McGill '09), and to commemorate his outstanding contributions to the field of metallurgy and, in particular, his invention of the process for the manufacture of acetylene black. Awarded by the Faculty Scholarships Committee on the recommendation of the Department of Metallurgical Engineering to a student entering the Third year of Metallurgical Engineering who has shown high scholastic ability and engineering promise.

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES. — Two scholarships of $375 each, and a number of bursaries are given by Mrs. Roy M. Wolvin in memory of her husband. One scholarship is restricted to men undergraduates in the Faculty of Enginering, which is awarded by the Faculty Scholarships Committee. The other scholarship is restricted to women undergraduates in the Faculty of Arts, the Faculty of Science or the Faculty of Management, and is awarded by the University Scholarships Committee upon recommendations of the faculties concerned. The bursaries are open to students in any undergraduate faculty who have a good academic record and need financial assistance. Apply for bursaries to the Student Aid Office.

4.5.3 BURSARIES

BECHTEL FOUNDATION OF CANADA BURSARIES. — Bursaries of not less than $300 each for students in the Faculty of Engineering. The $1,200 annual gift may be divided between two or four students, two of whom must be entering the First year.*

ROBERT BRUCE BURSARIES. — Several bursaries of $100 each are open each year to "young men and women of promising abilities but of straitened circumstances in Arts, Science, or Engineering."*

A. F. BYERS BURSARY. — $300, awarded to a student in Engineering with a good academic record who needs financial assistance. Renewable annually until the holder graduates if he maintains a satisfactory academic standard and still needs financial help. Apply to the office of the Dean.

CANADIAN TITANIUM PIGMENTS LIMITED BURSARIES. — Open to Canadian students in any year of the Faculty of Engineering or the Faculty of Science and awarded on the basis of academic merit and financial need.*

BURSARY OF THE CORPORATION OF QUEBEC ENGINEERS. — $500, tenable by a student in the Second or Third year of the Faculty of Engineering, and awarded by the Faculty.

DOMCO INDUSTRIES LIMITED BURSARY. — $250, for a student in Architecture who is in financial need and whose work shows talent.*

DOMTAR BURSARY. — $100, established by Domtar Construction Materials Limited, and awarded to a needy student in the School of Architecture.*

**Apply to Student Aid Office.*

DOUGLAS TUTORIAL BURSARIES. — The late Dr. James Douglas, who was a member of the Board of Governors, provided for ten or more tutorial bursaries of approximately $100 per annum in the Faculty of Engineering. These bursaries carry the obligation of giving tutorial instruction equivalent to one evening a week and the circumstances of the applicants as well as their academic standing are considered. Students in the Second and Third years of Engineering are eligible. Apply in writing to the Dean's Office on or before October 15.

HON. ROBERT JONES BURSARY. — One or more bursaries not exceeding $250 each in any one year are granted to needy students in the Faculties of Arts, Science, or Engineering.*

RICHARD S. LEA TUTORIAL BURSARIES. — The late Mrs. Wanda Lea, widow of the late Richard S. Lea, Consulting Engineer and graduate in Applied Science of McGill University, provided a fund of $5,000, the revenue of which provides two bursaries of $100 per annum given to suitable students in their last two years of Engineering, with the obligation of giving tutorial instruction equivalent to one evening a week. Apply in writing to the Dean's Office on or before October 15.

CHARLES MICHAEL MORSSEN BURSARY FUND. — Established by Mrs. C. Michael Morssen in memory of her husband, Charles Michael Morssen. The revenue from the fund to be used in assisting worthy students in any year of the Faculty of Engineering. Awarded by the Scholarships Committee of the Faculty of Engineering on the basis of academic record and financial need of the recipients.

SEPARATOR ENGINEERING LIMITED BURSARY. — A bursary of $200, open to undergraduate students enrolled in Chemical, Mechanical or Metallurgical Engineering. Awarded by the Scholarships Committee of the Faculty of Engineering on the basis of financial need and academic standing.

STANDARD CHEMICAL BURSARY. — An annual bursary of $250 awarded to a Canadian student, without restriction as to national background, language, colour or religion, preferably in an upper year of Chemical Engineering, who requires financial assistance. The award will be made by the Student Aid Office.*

EDWARD VOLCKMAR BURSARY FUND. — Established in 1972 by Miss Grace H. Prescott in memory of Edward Volckmar. Awarded annually to a student in need in the Faculty of Engineering. The bursary may be renewed until graduation.*

GORDON WEBBER BURSARIES. — Established by a bequest of the late Professor Gordon Webber, together with a number of donations from his former students, for needy students in the School of Architecture.*

For bursaries open to undergraduates in all Faculties, see Section 4.1.

4.5.4 PRIZES

BRITISH ASSOCIATION PRIZES. — Two book prizes of $40 and $20, awarded to the students obtaining the highest, and the second highest aggregate marks in the First year sessional examinations in Calculus and Mechanics.

CANADIAN CONSTRUCTION ASSOCIATION PRIZE. — Each year the Dean of the Faculty of Engineering selects the best technical paper dealing with some phase of construction work for submission to the national Robert Leggett Award competition. The competition is open to all senior undergraduate students of civil, mechanical or electrical engineering. The University's submission automatically receives a $50 prize and an engineer's handbook. The national competition prizes are $250, $150 and $75 plus handbooks.

CANADIAN INSTITUTE OF MINING AND METALLURGY PRIZES. — Two prizes, $200 and $100, for the best and second best technical paper prepared by undergraduates before receiving a Bachelor's degree on a subject appropriate to any one of the Institute's Technical Divisions, namely Coal, Geology, Industrial Minerals, Metallurgy, Metal Mining, and Petroleum and Natural Gas. Papers should be submitted to the Canadian Institute of Mining & Metallurgy, 1117 St. Catherine St. W., Montreal, Quebec, before January 15.

CORPORATION OF QUEBEC LAND SURVEYORS PRIZE. — $25, open to students in Civil Engineering and awarded at the end of the Second year by the Corporation to the student obtaining the highest standing in the subjects of the undergraduate courses in engineering comprising Surveying, up to the end of the Second year.

VICTOR E. DAWSON MEMORIAL BOOK PRIZE. — $85 to the best student entering the final year in the program of Mining Engineering and Applied Geophysics.

ENGINEERING INSTITUTE OF CANADA PRIZE. — $100, awarded to the student member of the Institute in the penultimate year whose standing, together with his activities in student engineering organizations, or in the local branch of a recognized engineering society, is, in the opinion of the Faculty, most meritorious.

Apply to Student Aid Office.

SCHOLARSHIPS

ASSOCIATE SECTION, MONTREAL BRANCH, ENGINEERING INSTITUTE OF CANADA PRIZES. — Two prizes, $50 and $25, for the best and second best papers in any branch of engineering presented at the Annual Students' Night sponsored by the Student Guidance Committee. Details may be obtained from the Faculty representative of the Engineering Institute of Canada.

H. L. FETHERSTONHAUGH BOOK PRIZE. — Established in memory of the late H. L. Fetherstonhaugh, M.C., F.R.A.I.C., F.R.I.B.A., R.C.A., a former member of staff in the School of Architecture. Awarded annually by the School of Architecture to the student with the highest standing in the course Professional Practice.

ROBERT FORSYTH PRIZE IN CIVIL ENGINEERING. — $100, bequeathed by the late Miss Jeanie Forsyth, and awarded, if the examiners so recommend, to a "worthy and needy" student of the graduating class who secures high standing in the subjects of Theory of Structures and Structural Design.

JAMES DICKIE HALL PRIZES. — Two prizes of $250 each, one in Mining and one in Metallurgy, established by Oliver Hall in memory of his son, James Dickie Hall, lost near Cannes in June 1944, in an air battle between four R.C.A.F. and more than ninety enemy planes. Open to students entering the Second or Third year of the above courses and awarded for the best technical paper in each department. Not awarded unless the papers are of high quality.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS PRIZE. — Two prizes of $25 and $15, offered to students of McGill by the Montreal Section of the Institute of Electrical and Electronics Engineers to outstanding students in the Second or Third year in Electrical Engineering upon recommendation by the Department.

MURDOCH LAING PRIZE. — $625, for the design of a medium cost city house, established by the late Mrs. Florence B. Laing in memory of her son (formerly a student in the School of Architecture) who was killed at Courcellette in 1916 while serving with the 24th Canadian Infantry Batallion. Awarded in a competition held during the summer prior to entering the B.Arch. program.

DR. W. B. LEWIS PRIZE (see Section 4.1.2).

CHESTER MACNAGHTEN PRIZES (see Section 4.1.2).

McCHARLES PRIZE. — $1,000, gift of the late Aeneas McCharles, for the discovery of improved methods of treating Canadian ores or minerals, for the development of new life-saving devices in the power and light industry, or for notable achievement in scientific research in any useful practical line. Open to any Canadian. For further information apply to the Registrar's Office.

R. G. K. MORRISON PRIZE. — An annual prize of $50 awarded to the student obtaining the highest marks in "Behaviour of Rock Structures" in the final year of Mining Engineering and Applied Geophysics.

JOHN BONSALL PORTER PRIZE. — $40, awarded annually by the Department of Mining Engineering and Applied Geophysics for outstanding performance.

QUEBEC ROAD BUILDERS ASSOCIATION PRIZE. — A prize, or prizes, totalling $150, offered to the student or students submitting technical papers, as part of their regular assignments, on a topic related to the soil engineering aspects of road building.

LOUIS ROBERTSON PRIZE. — Founded by Mr. and Mrs. John A. Robertson, in memory of their son, John Louis Armour Robertson, who was killed in World War I on July 18, 1916. A book prize for the student obtaining the highest standing in History of Architectural Theory II in the School of Architecture.

SCOTT EXHIBITION. — Book prize of $75, founded by the Caledonian Society of Montreal, to commemorate the centenary of Sir Walter Scott, and a British Association book prize of $50, awarded to the students obtaining the highest, and the second highest aggregate marks in the Second year College Equivalent Program sessional examinations in Mathematics, Mechanics, Descriptive Geometry, and Physics.

SOCIETY OF CHEMICAL INDUSTRY MERIT AWARDS. — Three Merit Awards consisting of a gold key and a year's subscription to "Chemistry and Industry" awarded to the three graduating students who achieve the best results in: (a) the B.Sc. course with Honours in Chemistry, or Joint Honours in Chemistry and some related science; (b) the B.Eng. course in Chemical Engineering; (c) the Honours course in Biochemistry. Awarded by the Scholarships Committees of the Faculty of Science and the Faculty of Engineering on the recommendations of the Chairmen of the Departments concerned.

PHILIP J. TURNER PRIZE. — $175, presented by A. B. Darbyson, B.Arch. '15, to the student in the School of Architecture obtaining the highest standing in Design and Construction II.

4.5.5 MEDALS

ERNEST BROWN GOLD MEDAL. — Founded by the late Mrs. Ernest Brown in 1952 in memory of her husband the late Ernest Brown, M.Sc., M.Eng., D.Eng., Dean of the Faculty of Engineering from 1930 to 1942. Awarded to the student in the graduating class in any of the Departments of Engineering showing the highest ability throughout his undergraduate course. While academic standing is of primary importance, account is also taken of qualities of leadership and ability to work with others.

BIRKS GOLD MEDAL. — Awarded by Henry Birks & Sons (Montreal) for the best graduating student in Metallurgical Engineering.

BRITISH ASSOCIATION MEDAL. — Founded by the British Association for the Advancement of Science in commemoration of its meeting held in Montreal in 1884. Open for competition to students of the graduating calss in each of the Engineering courses, and, if the examiners so recommend, is awarded to the student taking the highest position in the final examinations.

CHARLES MICHAEL MORSSEN GOLD MEDAL. — Established by Mrs. C. Michael Morssen in memory of her husband, Charles Michael Morssen, a benefactor of the Faculty of Engineering for many years. Awarded to a student of high academic standing and exceptional engineering promise in the graduating class in any of the Departments of Engineering.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA MEDAL. — Offered to a student who has completed the B.Arch. program, has obtained high standing throughout his course, and who gives promise of being an architect of distinction after graduation. Selection is made by a committee of staff of the School of Architecture.

4.5.6 LOAN FUNDS

BENNETT EDUCATIONAL FUND. — The Engineering Institute of Canada makes loans from the fund to Engineering students (normally only in upper years).*

CANADIAN INSTITUTE OF MINING AND METALLURGY MONTREAL BRANCH LOAN FUND. — Established in 1958 by the Montreal Branch of the Institute to provide loans to undergraduate or graduate students in Geological Sciences, Metallurgical Engineering and Mining Engineering.*

J. M. FAIRBAIRN LOAN FUND. — Bequeathed in 1967 by the late Mrs. J. M. Fairbairn for loans for students in the Faculty of Engineering.*

GEORGE HENRY FROST FUND. — Founded by the late G. H. Frost, B.Sc. '60, to aid students in the Faculty of Engineering who require financial assistance. When making loans the applicants' academic standing is considered.*

BERNARD LEVITON LOAN FUND. — Established by Mr. Sidney Ender in memory of the late Bernard Leviton for students in the Faculty of Engineering with preference given to students in Electrical Engineering.*

ISABELLA McLENNAN BURSARY AND LOAN FUND. — A rotating fund for students in Architecture to assist in financial emergencies.*

MONTREAL WOMEN'S AUXILIARY OF THE CANADIAN INSTITUTE OF MINING AND METALLURGY LOAN FUND. — Founded for the assistance of Engineering students in Mining, Metallurgy, Geology, and allied subjects.*

SCIENCE '25 MEMORIAL LOAN FUND. — Established in 1955 by the Class of Science '25 for Engineering undergraduates.*

WADDELL LOAN FUND. — Founded by the late J. B. Waddell. Loans are made under the same conditions as apply to the George Henry Frost Fund, but are available also to graduate students.*

WICKENDEN LOAN FUND. — Established in 1958 by Mr. John Wickenden to aid students in Engineering with better than average standing in previous year.*

OTHER LOAN FUNDS (see Section 4.1).

4.6 OPEN TO STUDENTS IN THE FACULTY OF LAW

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.6.1 SCHOLARSHIPS

ALEXANDER SCHOLARSHIP. — $100 bequeathed in 1950 by the late Maurice Alexander, C.M.G., K.C., of London, England, as a token of esteem for the late Sir Charles Peers Davidson, former Professor of Criminal Law at McGill. Awarded by the Faculty.

**Apply to Student Aid Office.*

SCHOLARSHIPS

EDWIN BOTSFORD BUSTEED SCHOLARSHIP. — Value $1,200 and can be used to supplement funds for graduate studies already received from other sources. Bequeathed by the late Mrs. Edwin Botsford Busteed in memory of her husband, Edwin Botsford Busteed, K.C., B.A., B.C.L. Awarded by the Faculty to an applicant, for graduate research on some subject connected with the law of Quebec and approved by the Faculty.

JOSEPH COHEN, Q.C., AWARD. — This award of $315 is made to a deserving student selected by the Faculty.

MAURICE GOLDENBERG MEMORIAL SCHOLARSHIP. — Value $225, in Government, Constitutional Law, or Public Administration, established by Senator H. Carl Goldenberg, Q.C. in memory of his father, the late Maurice Goldenberg. Awarded by the University Scholarships Committee to the best candidate amongst those nominated by the Faculty of Arts and the Faculty of Law.

CHIEF JUSTICE R. A. E. GREENSHIELDS MEMORIAL SCHOLARSHIPS. — Three scholarships covering tuition fees bequeathed by the late Mrs. R. A. E. Greenshields in memory of her husband, the late Chief Justice Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law. Awarded to students entering the Faculty of Law and renewable in each of the two upper years leading to the Bachelor of Civil Law degree, if satisfactory conduct, and at least a high Second Class standing are maintained, or at the discretion of the Faculty may be renewed for other reasons. Candidates must satisfy the regular requirements for admission to the Faculty, must have a standing of at least high Second Class, and preferably First Class at the University or Institution which they previously attended, and must furnish evidence of the need for financial assistance to enable them to study law. Fluency in both English and French is not essential, but preference is normally given to applicants with a good working knowledge of both languages. Apply to the Faculty.

LYON WILLIAM JACOBS, Q.C., AWARD. — Value $100 a year. Originally established in 1957 by donations totalling $500, and increased in 1962 to $2,000 by Mr. and Mrs. Alvin B. Jacobs, Mrs. Sybil Jacobs Phillips, Dr. and Mrs. Morris Lieff, and Mr. and Mrs. Newman Biller, in honour of Mr. Lyon W. Jacobs, Q.C. Awarded to a Second or Third year Law student who, in the opinion of the Faculty, shows the most progress in his studies and is also in financial need.

EUGENE LAFLEUR SCHOLARSHIP. — Value $1,000, presented by the law firm of Messrs. Laing, Weldon, Courtois, Clarkson, Parsons, Gonthier & Tétrault in memory of its founder. Awarded annually to a student entering the year in which he expects to obtain the B.C.L. degree (whether pursuing a purely B.C.L. program or taking the National Program). Selection by the Faculty on the principal ground of academic excellence.

MACDONALD TRAVELLING SCHOLARSHIP. — Value $4,000. Founded by a bequest of the late Sir William Macdonald "for the purpose of enabling English-speaking Law students to take a course of studies in France," the testator "deeming it of great importance that the English-speaking members of the legal profession should be proficient in the French language." The holder is required to pursue a year's study in th Law Faculty of a French university approved by the McGill Faculty of Law. Awarded by the Faculty to a student of the graduating class, proceeding to the Bar, with first or second class honours in the final examination and who would be unable without financial help to spend a year in France. The Faculty interprets the bequest as intending that the scholarship be awarded only to students preparing for practice as advocates in the Province of Quebec. At present the scholarship must be used in the year in which it is awarded.

McGILL LAW GRADUATES ASSOCIATION SCHOLARSHIPS. — The McGill Law Graduates Association offers two scholarships, one covering tuition fees for a student entering Second year and the other for a student entering Third year. Selection is made by the Faculty of Law in conjunction with a representative of the McGill Law Graduates Association, with broad discretion on the basis of need as well as academic and other merit.

THOMAS ALEXANDER ROWAT SCHOLARSHIP. — Value $250, founded by Mr. Donald McKenzie Rowat, N.P., in memory of his brother, Lieutenant Thomas Alexander Rowat, B.C.L., who was killed in action at Lens, France, on June 28 1917. Awarded for proficiency in French and in the old French law, on conditions set by the Faculty.

THOMAS SHEARER STEWART TRAVELLING FELLOWSHIP. — Value $2,700, established in memory of the late Thomas Shearer Stewart, Q.C., B.A. 1905, B.C.L. 1908, by his widow and family. Awarded annually by the Dean to a recent graduate of the Faculty of Law for studies in Law at a University in Europe or the United Kingdom approved by the Dean. Preference is given to Canadian citizens intending to reside in Canada. Apply to the Dean of the Faculty of Law.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

WAINWRIGHT SCHOLARSHIPS AND BURSARIES. — Established by a bequest from the estate of the late Arnold Wainwright, Q.C., for many years a lecturer in the Faculty of Law and a distinguished lawyer of the Montreal Bar. Two entrance scholarships of $1,500 each for three years and $2,000 each for the fourth year. Awarded to undergraduates of promise having distinguished scholastic records registered for the B.C.L. or LL.B. degree and proceeding to the National Program. Tenable for four years if candidates maintain distinguished academic standing. In addition, two scholarships of $2,000 each are available for students who have obtained their first law degree and are entering the last year of the National Program. Wainwright scholars who show no financial need will be awarded the nominal sum of $100, the balance of moneys to be allocated as Wainwright Bursaries to meritorious students with need.

4.6.2 BURSARIES

HAROLD G. FOX EDUCATION FUND BURSARIES. — Two awards of $250 each, established for a four-year period by donations from the Harold G. Fox Education Fund. $1,000 was donated in 1972 and another $1,000 in 1973. Awarded as a bursary or bursaries to needy Law students in good standing.*

H. E. HERSCHORN BURSARY. — The Student Aid Office may award a bursary from the interest of the H. E. Herschorn Fund to a deserving student in the Third or any subsequent year of his program leading to the B.Sc., B.A., M.D.,C.M., LL.B., or B.C.L. degree.

CHARLES ALBERT NUTTING BURSARY. — Value $250. Founded in 1930 by Miss Adelaide Nutting, M.A., R.N., in memory of her brother, Charles Albert Nutting, K.C., B.C.L. 1872. Awarded to needy Law students in good standing.*

4.6.3 PRIZES

HYMAN BAKER, Q.C. PRIZE. — $100, established by the family of Hyman Baker, Q.C. to commemorate his seventieth birthday. Awarded to the student obtaining the highest standing in Bankruptcy.

CANADA PERMANENT PRIZE. — An annual prize of $100 established in 1966 by Canada Permanent, awarded to the student who receives the highest standing in the group of courses comprising Wills, Successions, Marriage Covenants and Gifts.

CARSWELL PRIZES. — A book prize of $100 for a graduating student and a book prize of $50 for a lower year student have been established by the Carswell Company of Toronto. Both prizes are awarded annually at the discretion of the Faculty.

JOHN W. COOK, K.C., PRIZE. — $575 awarded annually to an outstanding member of the graduating class in Law as determined by the Dean and Faculty on the basis of high academic standing throughout the course, participation in Faculty activities and possible postgraduate intentions.

JOHN E. CRANKSHAW PRIZE. — Established by friends of the late John E. Crankshaw, Q.C., formerly lecturer in Criminal Law at McGill, the prize consists of $300 to be applied to Bar fees, advocate's gown and any other needs. Awarded to the student who has the highest standing in Criminal Law subjects at McGill and has passed his final examination for admission to the Bar of the Province of Quebec.

MAX CRESTOHL PRIZE. — $65, established in 1959 under the Will of the late Max Nathan Zion Crestohl, Q.C. Awarded to the student who, in the opinion of the Faculty, has submitted the best written contribution to the McGill Law Journal.

JOSEPH DAINOW PRIZE. — $100, esablished by Professor Dainow, for writing in the area of Civil Law.

HAROLD G. FOX EDUCATION FUND PRIZE. — $100 annually, established in 1971 for a five year period by a donation from the Harold G. Fox Education Fund. Awarded to the student who obtains the highest standing in the course on Intellectual Property.

CHIEF JUSTICE GREENSHIELDS PRIZE IN CRIMINAL LAW. — Value $95, endowed by the late Mrs. Greenshields in 1943 in memory of her husband, the late Chief Justice Robert Alfred Ernest Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law, and awarded to the member of the graduating class in Law having the highest standing in Criminal Law throughout the law program.

H. E. HERSCHORN PRIZE. — $150 established by the late Mr. H. E. Herschorn, N.P., B.A. 1911, B.C.L. 1914, to the highest ranking graduating student who intends to enter the Notarial profession.

"I.M.E." PRIZE IN COMMERCIAL LAW. — $200 to enable a student to purchase law books, established by Mr. George S. McFadden, Q.C., awarded to the member of the graduating class having the highest standing in Commercial Law throughout the program.

Apply to Student Aid Office.

SCHOLARSHIPS

JUNIOR BAR ASSOCIATION PRIZE. — A prize of $50 for the student who obtains the highest standing in Civil Procedure in the First year.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2.

DEAN IRA A. MacKAY PRIZE. — $100, established by Mr. R. deWolfe MacKay, Q.C., in memory of his father, formerly Dean of the Faculty of Arts and Science at McGill, and awarded at the discretion of the Faculty to the student obtaining the highest standing in the field of Torts throughout the program.

CHESTER MACNAGHTEN PRIZES. — See Section 4.1.2.

ADOLPHE MAILHIOT MEMORIAL PRIZE. — A prize of $25 established by Mr. and Mrs. J. N. Mailhiot, of Victoriaville, P.Q., in 1927, to be used for the purchase of law books.

PHILIP MEYEROVITCH, Q.C. PRIZE. — $100, established in 1972 by his wife and children, to commemorate his fifty years of practice before the Bar of the Province of Quebec. Awarded to the graduating student attaining the highest standing in Evidence.

MONTREAL BAR ASSOCIATION PRIZES. — A prize of $100 for the student who obtains the highest standing in Civil Law throughout the law program and $100 for the student who obtains the highest standing in Civil Procedure throughout the law program.

ALEXANDER MORRIS EXHIBITION. — Value $120, founded in memory of the late Hon. Alexander Morris, M.A., D.C.L., of Toronto, and awarded to the student who obtains the highest standing in the Second year.

LAZARUS PHILLIPS PRIZE. — $200, established by the wife and family of Senator Lazarus Phillips to commemorate his seventieth birthday. Awarded to the student obtaining the highest standing in the combined examinations in Company Law and Taxation.

QUEBEC BAR PRIZE. — $100 awarded to the winning team in the Moot Court Competition.

READING SOCIETY OF MONTREAL PRIZE. — $150, established in 1952, awarded to the student who obtains the highest standing in the First year.

BENJAMIN ROBINSON MEMORIAL PRIZE. — An annual prize of $150, established by the relatives and friends of the late Honourable Mr. Justice Benjamin Robinson, in his memory, to be awarded to the student who obtains the highest standing in the final year of the National Program leading to the degree of Bachelor of Laws (LL.B.).

LOUIS H. ROHRLICK MEMORIAL PRIZE. — An annual prize of $100, established by the associates of the late Louis H. Rohrlick, Q.C., in his memory, to be awarded to the member of the graduating class having the highest standing in Public International Law throughout the program.

MR. & MRS. SAUL TARNOFSKY AWARD. — $100 annually, established in 1971 by Mr. and Mrs. Saul Tarnofsky, and awarded by the Faculty to a First year student who has financial need.

GERALD S. TRITT, Q.C. PRIZE. — $100, established in 1961 by the family and friends of Mr. and Mrs. Tritt and awarded to the student with the highest standing in the Special Contracts course.

WAINWRIGHT RESEARCH ESSAY PRIZE. — A prize of $500, awarded for the best written contribution by an undergraduate, whether an essay or other paper and whether written as an elective or as part of a course requirement, or voluntarily. It will be awarded only if a high standard is achieved.

WILSON AND LAFLEUR (LIMITEE) AWARD. — This award of $100 is made every alternate year to a deserving First year student selected by the Faculty.

4.6.4 MEDALS

I. BALLON MEMORIAL MEDAL. — Established in 1955 by Mrs. I. Ballon in memory of her husband, the late Isidore Ballon, B.A. 1907, B.C.L. 1908, and awarded to the most outstanding student on the Board of Editors of the McGill Law Journal.

ELIZABETH TORRANCE GOLD MEDAL. — Founded in 1864 by Professor John Torrance in memory of his wife, and awarded to the student who obtains, with the highest standing throughout the B.C.L. program, his B.C.L. degree as his first Law degree at a spring convocation.

No medals, prizes or scholarships will be awarded if, in the opinion of the Faculty, there is no candidate of sufficient merit.

4.6.5 LOAN FUNDS

A. FLEMING LOAN FUND. — Established in 1954 to aid students in the Faculty of Law.*

LOUIS DE ZWIREK, Q.C., LOAN FUND. — Established in 1969 by Mrs. De Zwirek in honour of her late husband to aid students in the Faculty of Law.*

OTHER LOAN FUNDS. — For loan funds open to students in all faculties see Section 4.1.

Apply to Student Aid Office.

4.7 OPEN TO STUDENTS IN MACDONALD COLLEGE In the Faculty of Agriculture (Including School of Food Science)

For Entrance Scholarships, see Section 3.

For scholarships, bursaries and loans open to undergraduates in all Faculties, see Section 4.1.

For details of bursaries, scholarships and prizes in Agriculture and Food Science, see the Macdonald College Announcement for the Faculty of Agriculture and School of Food Science.

4.8 OPEN TO STUDENTS IN THE FACULTY OF MANAGEMENT

For Entrance Scholarships, see Section 3.

For scholarships and bursaries, open to undergraduates in all Faculties, see Section 4.1.

4.8.1 SCHOLARSHIPS

ROBERT BRUCE SCHOLARSHIP. — $100, tenable for two years, bequeathed by the late Robert Bruce, of Quebec City. Open to students in the Faculty of Arts, the Faculty of Science or the Faculty of Management and awarded for high standing in the examinations at the end of the First year. Awarded by the University Scholarships Committee upon recommendations of the faculties concerned.

ISAAC BRUCK MEMORIAL SCHOLARSHIPS. — $500, presented by the Bruck Silk Mills to provide two scholarships in the Faculty of Management. They may be held by students in the Second or Third year of the B.Com. program, and are awarded by the Scholarships Committee of the Faculty of Management upon the results of the sessional examinations.

COMMERCE 1925 AWARD. — $300, awarded by the Scholarships Committee of the Faculty of Management on the recommendation of the Dean to the student obtaining the highest marks in Accountancy at the end of the Third year of the Commerce course.

SIR WILLIAM MACDONALD SCHOLARSHIPS. — Two scholarships of $500 each, open to all students in the Second and Third years.

LADDIE MILLEN MEMORIAL SCHOLARSHIP. — Value $250, established by Mr. J. Ernest Millen in memory of his son, Laddie Millen, who was killed in action in World War I. Awarded to the student in any year in Commerce who presents the best essay on a topic in the field of Industrial Relations. The topic for the competition may be ascertained from the Dean of the Faculty of Management or the director of the Industrial Relations Centre to whom essays must be submitted on or before May 1.

PRICE WATERHOUSE & CO. AWARD. — Value $250, awarded by the Scholarships Committee of the Faculty of Management to a student in the B.Com. program completing his Second year and proceeding to his final year and planning to continue his studies with a practising firm of chartered accountants. The winner must have high standing in the Second year examinations and outstanding academic record, ability, and other qualifications. Second year Commerce students who wish to be considered should apply to the Dean of the Faculty of Management not later than May 1.

HYMAN HERBERT STEIN AWARD. — Approximately $250, in memory of the late Hyman Herbert Stein, B.Com. 1925, for an award for a student entering the Second year of the three-year Commerce Program. Awarded at the discretion of the Dean of the Faculty, and ability and financial need will be taken into consideration when making the award.

TOUCHE ROSS & CO. AWARD. — An award of $250 to a student who has completed the Second year, will be entering the final year in the B.Com. program, and who intends on graduation to qualify as a Chartered Accountant. Awarded on high standing in the Second year and on academic record, ability and personality and other characteristics considered to be suitable. Apply to the Dean of the Faculty of Management not later than May 1.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

ROY M. WOLVIN MEMORIAL SCHOLARSHIP. — See Section 4.2.2.

4.8.2 BURSARIES

AFFILIATED FACTORS CORPORATION BURSARY. — Open to deserving students in any year of Commerce.*

BESSIE PARSONS BENTLEY STUDENT AID FUND. — Established in 1959 by Mr. William Bentley in memory of the late Mrs. Bessie Parsons Bentley, for scholarships or student aid for students in the B.Com. program. Awards are made by the Student Aid Office, with the approval of the Dean of the Faculty of Management, to students whose general standing entitles them to special consideration and assistance.*

SYDNEY S. PAPPELBAUM BURSARY. — Approximately $180, in memory of the late Captain Sydney S. Pappelbaum, B.Com., 1952, open to students in Commerce who have completed Second year and are entering Third year.*

CHARLES S. C. WISDOM BURSARY. — $175, established in 1956 by the late Mrs. Stuart Albert Wisdom in memory of her late son, Charles S. C. Wisdom, a graduate of the Royal Military College, Kingston, and of the McGill School of Commerce. Awarded by the Student Aid Office in consultation with the Dean of the Faculty of Management to a deserving student in any of the last two years of the B. Com. program.*

4.8.3 PRIZES

CHERRY PRIZES. — See Section 4.2.4.

CLARKSON, GORDON & CO. PRIZE. — $100, awarded at the end of the Final year to the student who obtains the highest standing in Accounting and Auditing.

JOSEPH H. JACOBS PRIZE. — Value $90, established under the will of the late Joseph H. Jacobs, is awarded as a prize for Second year Accountacy.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2.

CHESTER MACNAGHTEN PRIZES. — See Section 4.1.2.

MONTREAL STOCK EXCHANGE AND CANADIAN STOCK EXCHANGE PRIZE. — $100, offered for an essay written by a student in the Final year of the B.Com program who is enrolled in the Investment Management course. The subject is chosen annually by the Department of Economics in consultation with the Dean of the Faculty of Management. An award is made only if the best essay is considered to be First Class. Final selection is made by the course lecturer, the Chairman of the Department of Economics, and the Dean of the Faculty of Management. Further information may be obtained from the course lecturer.

THORNE-GUNN PRIZE. — $150, awarded by Thorne, Gunn, Helliwell & Christenson to the student obtaining the highest marks in Auditing at the end of the Third year of the Commerce course.

WOMEN'S PERSONNEL GROUP OF MONTREAL BOOK PRIZE. — See Section 4.2.4.

4.8.4 MEDALS

SIR EDWARD BEATTY GOLD MEDAL. — A gold medal endowed by the late Sir Edward Beatty, former Chancellor of the University, awarded to the student in the B.Com. program with the highest distinction in Economics. Awarded, at present, on the aggregate marks for the three full year courses, Principles of Economics (or Honours alternatives), Money and Banking, and Economic Analysis (or Honours alternatives).

4.8.5 LOAN FUNDS

COMMERCIAL SOCIETY LOAN FUND. — To aid one or more students who are entering their Final year in the B.Com. program to complete their course. Loans are repayable within two years after graduation.*

MORTON J. WHITE LOAN FUND. — Established inn 1957 by a bequest from the late Morton J. White, to assist deserving students in the B.Com. program.*

OTHER LOAN FUNDS (see Section 4.1).

4.9 OPEN TO STUDENTS IN THE FACULTY OF MEDICINE

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

Academic standing and the year in which a student is enrolled are not factors influencing the eligibility for financial aid of students in the Faculty of Medicine. Financial need is the only criterion considered by the Scholarships Committee of the Faculty of Medicine.

Information concerning financial aid may be obtained from the Faculty of Medicine.

**Apply to Student Aid Office.*

4.9.1

SCHOLARSHIPS

DR. MAUDE E. SEYMOUR ABBOTT SCHOLARSHIPS. — A fund of $10,000, established in 1938 by an anonymous donation, in honour of the late Maude E. Seymour Abbott, B.A., M.D., F.R.C.P.(C), LL.D. (McGill), to commemorate her distinguished work in connection with the history of Canadian medicine, the Sir William Osler Pathological Collection, and her outstanding research in congenital cardiac disease.

The revenue of this fund provides scholarships awarded by the University to undergraduates of either sex in the Faculty of Medicine, but women are given the preference. Awards vary according to the needs of the winners. Further information may be obtained from the Dean's Office, Faculty of Medicine.

J. H. B. ALLAN SCHOLARSHIP. — $650, available to undergraduate students in any year. Awarded by the Scholarships Committee of the Faculty of Medicine on scholarship and financial need. No application required.

SIR EDWARD W. BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS. — A fund of $100,000 was bequeathed by the late Dr. Henry Albert Beatty, the income from which provides two scholarships, not necessarily of equal value, awarded annually to students of either sex and of any nationality. Open to (i) students registered in the McGill Faculty of Medicine as candidates for the M.D.,C.M. degree, (ii) graduates of an accredited Faculty of Medicine registered for postgraduate degrees, (iii) graduates of an accredited Faculty of Medicine registered for a postgraduate diploma in a clinical specialty, (iv) graduates of an accredited Faculty of Medicine who are employed in a year of research as part of their residency training program. For students who hold or are working towards the McGill M.D.,C.M. the award may be held at any approved institution in Canada or abroad. For other qualified students the award must be held at McGill. The holder is expected to devote his year of tenure either to research or to some form of special training excluding the normal training towards the M.D.,C.M. and excluding any of the years of residency training required in the Diploma courses. Awarded by the Faculty of Medicine but not unless suitable candidates present themselves. Apply to the Dean's Office on the forms provided for this purpose on or before February 1 of the year in which the scholarship is to commence.

MORRIS BINZ SCHOLARSHIP. — From the bequest of the late Morris Binz, $1,000 is set aside annually for scholarships in the Faculty of Medicine.

JAMES H. CUMMINGS SCHOLARSHIPS. — Two or more entrance scholarships of at least $500 each in the Faculty of Medicine bequeathed by the late James H. Cummings. Awarded at the discretion of the Faculty of Medicine.

DR. E. M. FISHER MEMORIAL SCHOLARSHIP. — Available to undergraduate students in any year. Awarded by the Scholarships Committee of the Faculty of Medicine on scholarship and financial need. No application required.

CHARLES E. FROSST MEDICAL AWARD AND BRONZE MEDAL. — An annual award valued at $500 to be awarded to a Third year medical student who has shown the most promise in the field of Pharmacology. A bronze medal will also be presented to the winner.

SIMON AND ROSALIE HALPERN MEMORIAL SCHOLARSHIP. See page 14.

WALTER J. HOARE MEMORIAL SCHOLARSHIP. — Endowed by the late Dr. Charles W. Hoare, a graduate of McGill University, in memory of his son, Walter J. Hoare, who was killed in World War I. Open to pupils of the Collegiate Institutes of the counties of Essex, Kent and Lambton entering the Faculty of Medicine. If there are no qualified candidates in this preferred class, the scholarship may be awarded to a nominee of the Faculty of Medicine.

KEITH HUTCHISON MEMORIAL SCHOLARSHIPS. — Two or more scholarships, in memory of the late Dr. Keith Hutchison, established in the Faculty of Medicine, with a total value of $1,450 per annum, subject to adjustment at the Faculty's discretion in the light of the holder's financial needs. Tenable in any year of the course and awarded on the basis of distinguished academic standing and financial need. The holder in any one session may re-apply for the following year.

IVES SCHOLARSHIP. — Established in 1967 by a bequest of the late David Fraser Murray, M.D.,C.M., 1924. Awarded by the Scholarships Committee of the Faculty of Medicine on the basis of financial need with preference given to students from Nova Scotia, New Brunswick or Prince Edward Island.

CAMPBELL KEENAN MEMORIAL SCHOLARSHIP. — Normal value, $200 a year, established by Miss Charlotte Mildred Hagar in memory of the late Dr. Campbell B. Keenan. Tenable in the Second, Third, or Fourth year of the course in Medicine and awarded on the basis of distinguished academic standing and financial need to an applicant who intends eventually to enter surgical practice. The holder in any one session may re-apply for a subsequent session.

JAMES GRAHAME KER AND FREDERICK K. PETRIE MEMORIAL SCHOLARSHIP. — $600, awarded to the student from Eastern Ontario (Counties of Dundas, Stormont, Glengarry, Grenville, Carleton, Russell, and Prescott) or from Montreal, who in the examinations of the First year of the medical course secures the highest academic standing. The Faculty of Medicine may, however, award this scholarship to the same student during the Third and Fourth years.

JAMES O. MEADOWS AND MARIA MEADOWS AWARDS. — A bequest of $200,000 from the late Dame Maria Cowan Meadows to establish awards for undergraduates or graduates in the Faculty of Medicine for the purpose of supporting research. Preference will be given to candidates working in the field of Cancer Research, but worthy candidates working in other areas of medical or surgical research will also be considered. Apply to the Dean of the Faculty of Medicine.

ROBERT SHARWOOD MEMORIAL SCHOLARSHIP. — Normal value $500 per annum, subject to adjustment depending on the holder's financial needs. Tenable in any year of the undergraduate course in Medicine and awarded on the basis of distinguished academic standing and financial need. The holder in any one session may re-apply for the following year.

FREDERICK SMITH MEMORIAL SCHOLARSHIP. — This name is given to one University Scholarship awarded only to a student in the Faculty of Medicine.

CORINNE FAY TABAC MEMORIAL AWARD IN MEDICINE. — Established by the family and friends of the late Corinne Fay Tabac, in her memory, for the support of established investigators doing research closely allied to the study of Hodgkins Disease. Awarded annually by the Postgraduate Awards Committee of the Faculty of Medicine.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.9.2 BURSARIES

BELLAM MEMORIAL BURSARIES. — A bequest of $20,000 from the estate of the late C. F. Bellam. Awarded by the Scholarships Committee of the Faculty of Medicine on the basis of financial need. Candidates must be from Stanstead County of Quebec.

DR. BEN BENJAMIN MEMORIAL BURSARY. — Value $300, established by his sisters in memory of the late Ben Benjamin, B.A., M.D.,C.M., lecturer in the Department of Paediatrics. Awarded by the Scholarships Committee of the Faculty of Medicine on high academic standing and financial need.

JOSEPH ISRAEL BENNETT BURSARY. — A bequest by the late Joseph Israel Bennett, the interest on which is to provide a bursary to be awarded annually to a deserving student by the Scholarships Committee of the Faculty of Medicine.

BEVERLY COONER BURSARY. — $100, established by the family and friends of the late Beverly Cooner to assist a deserving student. Awarded annually by the Scholarships Committee of the Faculty of Medicine with the approval of the National Council of Jewish Women on the basis of financial need and academic standing.

CO-OPERATIVE MEDICAL SERVICES FEDERATION OF ONTARIO BURSARY. — Value, $500 for four years. To be awarded on the basis of academic standing and financial need, to a student who has completed the pre-medical years and is entering the first medical year in university, and who has been a member or whose parents have been members of a medical co-operative for at least two years. In the event of no First year student qualifying, a Second, Third, or Fourth year student may be chosen. Apply to the Dean of the Faculty of Medicine.

ANNIE DIAMOND BURSARIES. — Established in 1969 for medical students with financial need. To be awarded by the Scholarships Committee of the Faculty of Medicine. No application is required, and the awards will vary according to the needs of the recipients.

SAMUEL EIDLOW MEMORIAL BURSARY FUND. — Established for worthy medical undergraduate students with financial need. Awarded by the Scholarships Committee of the Faculty of Medicine.

CHANCELLOR FERRIER MEMORIAL BURSARY. — $250, established by Mrs. Herbert V. Lacey in memory of her great-grandfather, Senator James Ferrier, Chancellor of McGill from 1884 to 1889. Awarded by the Scholarships Committee of the Faculty of Medicine on academic standing and financial need, with preference to students from the state of Wyoming.

KINCH MEMORIAL BURSARY. — Established by Miss Dia Joyce in memory of Mr. and Mrs. C. H. Kinch to assist medical undergraduate students. Awarded by the Scholarships Committee of the Faculty of Medicine on the basis of financial need and academic standing.

G. J. PICKLEMAN BURSARY. — $100, established in 1956 and available to undergraduate students in any year. Awarded by the Scholarships Committee of the Faculty of Medicine on distinguished academic standing and financial need.

ROCHE BURSARY. — A bursary to the amount of $1,500 annually, donated by Hoffmann-La Roche Limited. Awarded by the Scholarships Committee of the Faculty of Medicine to a student (or students) in the undergraduate medical course who require financial assistance to complete their education.

SAMUEL ROSENFELD BURSARY. — Established by Mrs. Ida Rosenfeld Letovsky in memory of her late husband, Mr. Samuel Rosenfeld, for worthy medical undergraduate students with financial need. Awarded by the Scholarships Committee of the Faculty of Medicine.

REUBEN ROSS AWARD. — A bequest from the late Reuben Ross, the annual income to provide an annual award available to students in the Faculty of Medicine and awarded by the Scholarships Committee of the Faculty of Medicine on the basis of financial need.

ROSE SCHWARZ — HELEN MARCUS BURSARY. — $100, established by the family and friends of the late Rose Schwarz and the late Helen Marcus to assist a needy and deserving student who intends to devote his summer employment to Cancer Research. Awarded annually by the Scholarships Committee of the Faculty of Medicine with the approval of the National Council of Jewish Women.

BRUCE SMITH BURSARY FUND. — A bequest by the late Dr. Bruce Stewart Smith "to assist poor but worthy medical students to complete medical training at McGill University."

DR. MILTON C. AND NINA E. WILSON AWARD. — Established in 1970 by a bequest from the late Dr. Milton C. Wilson, the annual income to be available for the support of undergraduate or postgraduate students in the Faculty of Medicine who are in need of financial assistance. Awarded by the Dean of Medicine.

4.9.3 PRIZES

MR. AND MRS. J. A. BESNER PRIZE. — Approximately $250, awarded to the student obtaining the highest aggregate standing in the Third year of the medical undergraduate course.

H. S. BIRKETT MEMORIAL PRIZE IN OTOLARYNGOLOGY. — $100, established by Miss Winifred Birkett in memory of her father, the late Dr. H. S. Birkett, former Professor of Otolaryngology, for the student who in the final year has shown the best performance in Otolaryngology. In addition, a specially bound volume containing an address by Dr. Birkett on the history of medicine in the Province of Quebec and a photograph and brief biographical sketch of Dr. Birkett will be presented to the winner.

BRISTOL LABORATORIES OF CANADA BOOK PRIZE. — An annual prize of $125 in books, awarded to a Third year medical student on the basis of academic standing and financial need.

JOSEPH MORLEY DRAKE PRIZE. — (Founded by the late Joseph Morley Drake, M.D.). — Value $75 in books, awarded to the student with the highest marks in the final examination in Pathology.

ROBERT FORSYTH PRIZE. — $60, bequeathed by the late Miss Jeanie Forsyth, awarded each year to a student who, upon graduation, has shown particular ability in all branches of Surgery.

HARRY S. GROSS MEMORIAL PRIZE. — $50, bequeathed by the late Mrs. Esther B. Gross in memory of her late husband, Harry S. Gross, D.D.S. 1913, M.D.,C.M. 1921. Awarded to the student with the highest standing in Surgery in the Third year of the medical course.

JOSEPH HILS PRIZE. — (Founded by the late Dr. Joseph Hils, of Woonsocket, R.I.). — A prize of $50 in books, awarded to the student who obtains the highest marks in Pharmacology.

CAMPBELL HOWARD PRIZE IN CLINICAL MEDICINE. — $50, founded by Mrs. Campbell Howard, in memory of the late Dr. Campbell P. Howard, Professor of Medicine at McGill. Awarded to the student of the final year who has shown the most consistent excellence in his written case reports in Clinical Medicine in the Third year of the course.

F. SLATER JACKSON PRIZE. — Value $50, founded by Mr. and Mrs. H. F. Jackson in memory of their son, the late F. Slater Jackson, M.D. Awarded to the student with the highest standing in the final examinations in Histology.

CAMPBELL KEENAN MEMORIAL PRIZE IN CLINICAL SURGERY. — $50, established by Miss Charlotte Mildred Hagar in memory of the late Dr. Campbell B. Keenan. Awarded to the student in the graduating class who has shown the highest proficiency in Clinical Surgery as determined by the Chairman of the Department of Surgery. The winner of the Robert Forsyth Prize in Surgery is ineligible.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2.

CHESTER MACNAGHTEN PRIZES. — Section 4.1.2.

MONTREAL CHILDREN'S HOSPITAL CUSHING MEMORIAL PRIZE. — $100, awarded to the student with the highest standing in Paediatrics in the final year.

PRIMARY PRIZE. — A prize in books for the best aggregate standing in the subjects of the first two years.

PRIZE IN MEDICAL JURISPRUDENCE. — $100, awarded to the student who obtains the highest standing in Medical Jurisprudence.

PSYCHIATRY BOOK PRIZE. — Value $75 in books, awarded to the Third year medical student who, in the opinion of the Awards Committee of the Department of Psychiatry, submits the best essay upon a subject to be set each year.

SAMUEL ROSENFELD PRIZE. — $50, awarded to the student with the highest standing in Medical Microbiology in the Second year of the medical course.

MONA BRONFMAN SHECKMAN PRIZE. — Awarded for the highest standing in Psychiatry in the final year.

ALEXANDER D. STEWART PRIZE. — A book prize, founded by the late W. Grant Stewart (Arts 1885, Med. 1888) in memory of his brother, the late Alexander D. Stewart (Med. 1888), to be awarded to the member of the graduating class who, in the opinion of the Faculty, presents in every respect the highest qualifications to practise his profession.

J. FRANCIS WILLIAMS PRIZE IN MEDICINE AND CLINICAL MEDICINE. — $500, founded by the late J. Francis Williams, M.D., awarded to the student obtaining the highest standing in Medicine in the final year of the medical undergraduate course.

WOMEN'S PAVILION PRIZE. — A book prize awarded for the highest standing in Obstetrics and Gynaecology in the final year of the medical course. The winner of the Chipman Medal is not eligible for this prize.

4.9.4 MEDALS

WALTER CHIPMAN GOLD MEDAL. — Founded by the late Max Strean in honour of Dr. W. W. Chipman. Awarded to the student obtaining the highest aggregate standing in Obstetrics and Gynaecology throughout the medical course.

CHARLES E. FROSST BRONZE MEDAL. — See Section 4.9.1.

HOLMES GOLD MEDAL. — Founded by the Medical Faculty in 1865, in memory of the late Andrew Holmes, M.D., LL.D., sometime Dean of the Faculty. Awarded to the student graduating with the highest total of marks in the different branches of the medical curriculum. The winner has the option of exchanging this medal for a bronze and the money equivalent of the gold medal.

SUTHERLAND GOLD MEDAL. — Founded in 1878 by the late Mrs. Sutherland in memory of her husband, William Sutherland, M.D., formerly Professor of Chemistry in this Faculty. Awarded for the best examination in Biochemistry, together with a creditable examination in the primary branches.

WOOD GOLD MEDAL. — Founded by Casey A. Wood, M.D., LL.D. Awarded to the student graduating with the highest aggregate number of marks in the oral and practical examinations in the clinical subjects of the Final year. The winner of the Holmes Medal is not eligible.

4.9.5 LOAN FUNDS

MAUDE ABBOTT MEMORIAL LOAN FUND. — Established by the Federation of Medical Women of Canada and available to any woman medical student, First year interne or graduate student. Apply to the Convenor, Maude Abbott Memorial Loan Fund Committee, Federation of Medical Women of Canada, C.M.A. House, 1867 Alta Vista Drive, Ottawa 8, Ontario.

BORIGHT LOAN FUND. — Established in 1963 by a bequest from the late George H. Boright for loans to deserving medical students.*

BOSWELL JAMES LOAN FUND. — Established in 1943 by Dr. A. Boswell James and available to undergraduates and graduates.*

ALEC AND SYLVIA DOLLIN LOAN FUND. — Established in 1965 by Mr. Alec Dollin for loans for medical students.*

KELLOGG LOAN FUND. — Given by the Kellogg Foundation to provide loans up to a maximum of tuition fees in any year to students in good standing who require such assistance. The regulations and application forms are the same as for other loan funds controlled by the University.*

LACEY LOAN FUND. — Established in 1962 by a donation from Mrs. Herbert Van Devanter Lacey, Cheyenne, Wyoming, primarily for aid to medical students from the state of Wyoming but may be extended to others in accordance with the following priorities: Medical students from the state of Wyoming; Dental students from the state of Wyoming; Medical students from other states of the U.S.A.; Medical students from other countries. Loans not to exceed $700 per year each.*

GERTRUDE MUDGE MEMORIAL STUDENT AID FUND. — Established in 1958 by donations from students, graduates, and staff in memory of the late Gertrude Mudge, for many years Assistant Secretary of the Faculty of Medicine. Loans shall not exceed the tuition fees for the year.*

WESTON FAY VOLBERG JR. MEMORIAL LOAN FUND. — Established in 1956 by classmates of the late Weston Fay Volberg, Jr., M.D.,C.M. 1953, and available to medical students.*

OTHER LOAN FUNDS. — See Section 4.1.

Apply to Student Aid Office.

4.10 OPEN TO STUDENTS IN THE FACULTY OF MUSIC

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.10.1 SCHOLARSHIPS

ELLEN BALLON PIANO SCHOLARSHIP. — Provided by the interest on two gifts of $1,500 each made, in 1928 and subsequently, by Miss Ellen Ballon, a graduate of the Conservatorium and by the Julius Block Scholarship Fund and the Cummings Foundation Scholarship Fund. In making this award the Faculty takes into account the need as well as the ability of candidates.

MARGUERITE E. CHOQUETTE AWARD. — Established by a bequest of $5,000 from the estate of the late Miss Marguerite E. Choquette the income of which is to be awarded to a piano student who appears to have more than ordinary talent and requires financial assistance to continue his or her studies.

MADAME PAULINE DONALDA AWARD. — $666 annually, established in 1971 for a three-year period by a donation from the Opera Guild Incorporated in memory of the late Pauline Donalda. Awarded at the discretion of the Dean and the Faculty Scholarships Committee to a deserving student, or students, majoring in Voice in the Faculty of Music.

DR. D. M. HERBERT AWARD. — An annual award established in 1967 by the Baron Byng High School Graduates' Choir for a promising student enrolled in the Bachelor of Music course who is preparing to become a Choral Specialist.

ETHEL JAMIESON IVEY AWARD. — An award of $500 established in 1973 for a five-year period by the Charles H. Ivey Foundation, to be awarded to a suitable student chosen at the discretion of the Dean and Council of the Faculty of Music.

SIR WILLIAM MACDONALD MEMORIAL SCHOLARSHIPS. — Established in 1922 by the University. The interest upon the original endowment of $6,000 provides scholarships in Music. Apply to the Dean of the Faculty.

MARION MAGOR SCHOLARSHIP. — Founded in 1953 by the family of the late Mrs. R. J. Magor for students entering the upper years of the Bachelor of Music course.

MARTLET MUSIC AWARDS. — Made possible through the generosity of patrons of the Martlet Concert and Ball which took place in April 1960. Awards, ranging in value from one-third to full tuition fees, are offered to students qualifying for admission to the first or any subsequent year of either degree or diploma course in music. All awards to be granted on the basis of musical talent, academic standing and financial need. Apply to the Dean of the Faculty.

SIR WILLIAM PETERSON MEMORIAL SCHOLARSHIPS. — Established in 1921 by the University and by friends, graduates and pupils of the Faculty of Music. The interest upon the original endowment of $6,055 provides scholarships in Music. Apply to the Dean of the Faculty.

RESSLER MEMORIAL SCHOLARSHIP. — Founded in 1950 by the late Mr. H. R. Ressler for violinists.

LAURIE ROBIN SLAPCOFF MEMORIAL AWARD. — Established in June 1971 by the family and friends of the late Laurie Robin Slapcoff and awarded at the discretion of the Dean and the Faculty Scholarships Committee. The award is to be applied towards the tuition of a deserving Voice student, preferably a member of the McGill Opera Workshop and a full-time student in the Faculty of Music.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.10.2 BURSARIES

NATHALIE CLAIRE-FELDMAN MEMORIAL BURSARY. — Awarded to a student of marked ability on the double bass to be auditioned and chosen by the Faculty of Music.

FONDATION LES AMIS DE L'ART BURSARY. — $300 established as a contribution towards the costs of a complete course in music, renewable each year of the course for a student under 25 and of limited financial means.

BERNARD L. ISSENMAN MEMORIAL BURSARY. — Established by Mrs. Benjamin Shulman in memory of her late husband, Mr. Bernard L. Issenman. Awarded by the Faculty of Music to a full-time student requiring financial assistance to further his musical education.

LAKESHORE ORGANISTS BURSARY. — To assist financially a serious student or students of the organ who might otherwise have difficulty pursuing their organ studies. Preference will be given to a student from the Lakeshore area. Apply to the Dean of the Faculty.

RAYMOND LALIBERTE BURSARY. — $125, established by Mr. Raymond Laliberté, B.Mus. (Comp.) 1970, for an academically worthy student with financial need who is majoring in Composition. Awarded by the Faculty of Music.

LILY LAUTERMAN MEMORIAL BURSARIES. — Established by a bequest of approximately $8,000 from the estate of the late Miss Rose Annie Lauterman, the income of which is to provide bursaries to deserving students with financial need in the Faculty of Music.

ROMANO BURSARY. — An annual bursary of $100 in memory of Arthur Romano, formerly a teacher in the Faculty of Music at McGill, to be awarded by the Faculty of Music to a deserving student in the Woodwind Section.

UNIVERSITY BURSARIES. — Full time students studying for the Licentiate in Music or for the Bachelor of Music degree are eligible for University bursaries. See Section 4.1.

WILLIAM ARTHUR WEIR MEMORIAL BURSARY. — Established by Mr. Donald Weir in memory of his late father, Mr. William Arthur Weir, for a deserving student in the Faculty of Music. Awarded at the discretion of the Dean in consultation with the Faculty Scholarships Committee.

4.10.3 PRIZES

HECTOR BERLIOZ PRIZE. — An annual prize of $100 offered by Mr. Robert Ryker to a deserving student of orchestral instruments in the Faculty of Music.

BROTT PRIZE. — $100, established by Professor Alexander Brott for the best integrated Chamber Music Group.

DONALDA PRIZE. — Founded by a gift of $2,500 by Madame Pauline Donalda.

CONSTANCE HAMILTON MEMORIAL PRIZE. — $100, established by Professor Helmut Blume for senior students, preferably in the branch of School Music.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2.

SIR CHARLES W. LINDSAY PRIZE. — An annual prize of $25 established by the Provincial Chapter of the Quebec I.O.D.E. for a deserving student in the Faculty of Music.

CHESTER MACNAGHTEN PRIZES. — See Section 4.1.2.

CONSTANCE WILLEY PRIZE. — Established by a bequest of $1,000 by the late Mrs. Constance Willey, the annual income of which will be awarded to a piano student.

4.10.4 LOAN FUNDS

GLADYS GLASSCO MEMORIAL LOAN FUND. — For students in the Faculty of Music, established in 1954 by Mr. Gordon B. Glassco in memory of his wife. Apply to the Dean of the Faculty.

4.11 OPEN TO STUDENTS IN THE SCHOOL OF NURSING

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.11.1 SCHOLARSHIPS

ALUMNAE ASSOCIATION OF THE SCHOOL OF NURSING SCHOLARSHIP. — In memory of Dr. Marion Lindeburgh, the Alumnae Association has established a scholarship of $700, open to graduate, registered nurses who wish to study at the School of Nursing, and who meet the entrance requirements. Scholarships are also available for students in B.Sc.(N) and M.Sc.(N) programs. Applications should be submitted by June 1 to the Chairman of the Scholarship Committee, Alumnae Association, 3506 University St., Montreal.

ENTRANCE SCHOLARSHIPS (see Section 3).

ROYAL VICTORIA HOSPITAL NURSING SCHOLARSHIPS:

(a) The Mabel F. Hersey Scholarship for postgraduate study.
(b) The Emma Thomas Scholarship for postgraduate study.
(c) The Ida McGregor Scholarship for postgraduate study.
(d) The Women's Auxiliary offers bursaries for senior staff members for postgraduate study.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.11.2 BURSARIES

ALUMNAE ASSOCIATION, ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING BURSARY. — Bursary of $1,000 open to graduates of the Royal Victoria Hospital School of Nursing, accepted in an approved University program. Apply before March 31 to Alumnae Office, Nurses' Home, Royal Victoria Hospital, Montreal.

ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC BURSARIES. — A limited number of bursaries are awarded each year for post-basic study in nursing. For programs leading to the Baccalaureate degree, the amount is $1,500 and for study leading to the Master's degree, the award is $3,000. Applications should be submitted by May 15 to The Association of Nurses of the Province of Quebec, 4200 Dorchester West, Montreal 215, Quebec.

GOVERNMENT BURSARIES. — A limited number of bursaries are given by the Province of Quebec to nurses who wish to remain in the province, and who have been accepted for admission to the School.

MONTREAL GENERAL HOSPITAL BURSARIES. — The Montreal General Hospital has a limited number of bursaries available for nurses studying in the Baccalaureate and Master's programs. For further information apply to: The Director of Nursing, Montreal General Hospital, 1650 Cedar Avenue, Montreal 109, Quebec.

ST. JOHN AMBULANCE ASSOCIATION OF CANADA BURSARIES. — One or more bursaries of $1,000 from the Margaret MacLaren Memorial Fund will be awarded annually to experienced Registered Nurses for study at the Masters' level. This fund may also be used to serve the needs of student nurse applicants with preference given to those with St. John Ambulance affiliation. Applications must reach National Headquarters not later than May 1 addressed to the Chairman of Bursary Funds, 321 Chapel Street, Ottawa, Ontario. K1N 7Z2.

UNIVERSITY BURSARIES.

VICTORIAN ORDER OF NURSES FOR CANADA BURSARIES. — The Victorian Order of Nurses for Canada offers bursaries of $1,800 to nurses enrolling at a Canadian university in a diploma course or in the final year of a basic or post-basic degree program which includes preparation in public health nursing. Bursary recipients agree to work one year for the Victorian Order in any branch where their services are required. Inquiries to Victorian Order of Nurses for Canada, 5 Blackburn Ave., Ottawa K1N 8A2, Ontario.

4.11.3 PRIZES

LEXY L. FELLOWES MEMORIAL PRIZE. — An annual prize of $50 to be awarded to a student of high academic and professional achievement, in the Bachelor of Nursing Course, on the recommendation of the School.

4.11.4 LOAN FUNDS

KELLOGG FOUNDATION LOAN FUND. — Established through the generosity of the Foundation to assist graduate nurses who have unexpected expenses while registered in courses at the school. Consult the Director of the School of Nursing.

4.12 OPEN TO STUDENTS IN THE SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

ENTRANCE SCHOLARSHIPS (see Section 3).

UNIVERSITY SCHOLARSHIPS. — (see Section 4.1.1).

4.12.1 PRIZES

CANADIAN PHYSIOTHERAPY ASSOCIATION BOOK PRIZE. — Awarded to the student with the highest standing throughout the B.Sc.(Phys.Ther.) course.

THE CANADIAN ASSOCIATION OF OCCUPATIONAL THERAPISTS' AWARD. — Presented to the student with the highest standing in theory in the final year of the B.Occ.Ther. course.

QUEBEC SOCIETY OF OCCUPATIONAL THERAPISTS BOOK PRIZE. — Awarded to the student with the highest standing in practical application of Occupational Therapy throughout the B.Occ.Ther. course.

CAROL RUTENBERG-SILVER MEMORIAL AWARD. — Presented to the student with the highest standing in the final year of the B.Sc.(Phys.Ther.) course.

LOAN FUNDS. — See Section 4.1.

4.13 OPEN TO STUDENTS IN THE FACULTY OF RELIGIOUS STUDIES

For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

W. M. BIRKS AWARDS. — Three awards of $100 each to the students graduating with the best records in the B.Th., S.T.M. and M.A. (Religious Studies).

SCHOLARSHIPS

SAMUEL FINLEY MEMORIAL BURSARY. — Usually $150, available to a student enrolled in the Faculty of Graduate Studies and Research who is pursuing advanced studies in religion or theology, awarded at the discretion of the Dean of Religious Studies.

HOUSTON BURSARY. — Value $400, the bequest of Thomas Houston, for students studying for the ministry of the Presbyterian Church in Canada or The United Church of Canada, and preference is given to candidates whose mother tongue is French. Awarded by the Faculty of Religious Studies and open to students in the Faculty of Arts and the Faculty of Religious Studies.

DR. W. B. LEWIS PRIZE. — (See Section 4.1.2)

CHESTER MACNAGHTEN PRIZES. — (See Section 4.1.2)

GORDON R. STEPHEN JR. MEMORIAL BURSARY. — Established in 1968 to provide bursary assistance for students in the Faculty of Religious Studies for purposes of assisting any student who might not otherwise be able to obtain a university degree and who preferably had attended Weredale House. Awards are made by the Student Aid Office on the recommendation of the Faculty of Religious Studies.

NEIL STEWART PRIZE. — A $200 prize, established by Mr. Neil Stewart of Vankleek Hill in 1878. Awarded on the recommendation of the Faculty of Religious Studies to a student or students studying biblical Hebrew and registered in that Faculty.

UNIVERSITY SCHOLARSHIPS. — (See Section 4.1.1)

LOAN FUNDS (see Section 4.1).

Students of the Faculty of Religious Studies who are registered also in the Montreal Diocesan Theological College, in the United Theological College, or in the Presbyterian College, will be eligible for prizes, scholarships, and bursaries as announced in calendars of these institutions.

4.14 OPEN TO STUDENTS IN THE FACULTY OF SCIENCE

For Entrance Scholarships, see Section 3.
For scholarships and bursaries open to undergraduates in all Faculties, see Section 4.1.

4.14.1 GENERAL REGULATIONS IN SCIENCE

1. No applications are required. The awards are made by the Science Scholarships Committee on the basis of examination standings.

2. Unless restricted by the deed of gift or faculty regulations the awards are open to all students studying for the B.Sc. degree.

3. Normally only those students who have completed at least 30 credits in the year preceding the award will be eligible for awards.

4. Scholarships will be awarded only if an adequate standard is attained.

5. If in any university year there is not a sufficient number of candidates showing adequate merit, any one or more of the scholarships offered for competition may be given to more deserving candidates in another year.

6. In order to retain a scholarship a successful candidate must proceed regularly with a university course to the satisfaction of the Faculty.

4.14.2 SCHOLARSHIPS

MARGARET JANE ALLAN SCHOLARSHIP. — Bequeathed in 1929 to the Royal Victoria College by Mrs. Agnes W. Allan. Value $250, awarded annually to the woman student with the highest standing in the initial year of the B.Sc. course.

ROBERT BRUCE SCHOLARSHIP. — $100, tenable for two years, bequeathed by the late Robert Bruce, of Quebec City. Open to students in the Faculty of Arts, the Faculty of Science or the Faculty of Management and awarded for high standing at the end of the initial year. Awarded by the University Scholarships Committee upon recommendations of the faculties concerned.

CANADIAN ASSOCIATION OF TEXTILE COLOURISTS AND CHEMISTS (QUEBEC SECTION) SCHOLARSHIP. — $300, for the student entering the Final year with the highest aggregate standing in the penultimate year of the Honours Chemistry course. Awarded by the Scholarships Committee of the Faculty of Science upon the recommendation of the Department of Chemistry irrespective of colour, race, sex, creed, or financial need.

CHEVRON STANDARD LIMITED GEOLOGICAL SCHOLARSHIP. — $500 awarded by the Scholarships Committee of the Faculty of Science to aid an outstanding student to complete his final year in Geology or Solid Earth Geophysics. Preference given to students interested in oil exploration and production.

COMINCO SCHOLARSHIPS. — To assist in ensuring a continuing supply of qualified graduates in fields vital to industry in Canada, Cominco Ltd. has established a program of twenty-four scholarships at specified Universities in Canada to assist students in financing the final two years of their undergraduate course. Two of these scholarships are awarded annually in the form of two-year awards of $800 each per year at McGill University by the University Scholarships Committee upon the recommendations of the departments concerned. Open to students who in the fall will enter the penultimate undergraduate year of a course leading to a degree in Honours Geology, Chemical Engineering, Geological Engineering, Mining, Mineral Engineering, Mechanical Engineering, Metallurgy, Metallurgical Engineering, Soil Science, or Agronomy. Renewals for the second year will be subject to attainment of academic standards satisfactory to the University Scholarships Committee.

DOW-HICKSON SCHOLARSHIPS. — Annual value, not less than $1,000 each. Established in 1957 by a bequest from the late Dr. J. William A. Hickson and awarded to students entering the penultimate or the Final year of the Honours courses in English Literature, Philosophy or Psychology. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of the departments concerned.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS. — See Section 3.2.

R. P. D. GRAHAM SCHOLARSHIPS AND MEDAL. — Endowed by former students of Dr. R. P. D. Graham, Professor Emeritus of Mineralogy, for students entering an intermediate year or the Final year of the B.Sc. course and the Second or Third year of the Mining Engineering course. Awarded by the University Scholarships Committee upon the recommendations of the Chairmen of the Departments of Geological Sciences and Mining Engineering & Applied Geophysics. A bronze medal bearing a likeness of Professor Graham is given to the most highly qualified student receiving one of these awards.

WILLIAM HENRY HOWARD SCHOLARSHIPS. — Three scholarships of $900 each bequeathed in 1955 by the late Mrs. Florence P. Howard in memory of her husband. Open to undergraduate and graduate students in Metallurgy, Chemical Engineering and Geology. Awarded and renewable by the University Scholarships Committee upon the recommendations of the departments concerned for scholastic ability and general promise.

INCO PARTICIPATING SCHOLARSHIPS. — The International Nickel Company of Canada, Limited, provides annually fifty awards at Canadian universities to students who in the fall will enter the penultimate undergraduate year of a course leading to a degree in Chemistry, Geology (including Geophysics and Geochemistry), and Chemical, Civil, Electrical, Mechanical, Metallurgical and Mining Engineering. Each award covers tuition fees plus a grant of $300 for miscellaneous expenses and a grant-in-aid of $500 to the department. Recipients may also request to undertake a summer orientation program with the Company in operations allied to their field of study. Renewed for one additional year provided student satisfies the requirements for the award. Students must be recommended by the department, and no more than two applications will be considered from each department of any university. Further information may be obtained from the Registrar's Office. Applications must be submitted by January 15.

FREDERIC J. LE MAISTRE AWARD. — Value $200, awarded annually to the student obtaining the highest standing in the penultimate year of the Honours Chemistry course. Awarded by the Faculty of Science Scholarships Committee on the recommendation of the Department of Chemistry.

LOGAN SCHOLARSHIPS. — Two scholarships of $200 each, one for work in Geological Sciences and the other for work in Botany or Zoology, open to men and women entering an intermediate year or the Final year of the undergraduate course. Awarded by the Faculty of Science on the recommendations of the Departments of Geological Sciences and of Biology.

SIR WILLIAM MACDONALD SCHOLARSHIPS. — Two scholarships of $500 each, open to all students entering an intermediate year or the Final year.

McGILL ALUMNAE SCHOLARSHIPS. — See Section 4.16.4.

MAJOR HIRAM MILLS SCHOLARSHIP. — $100, open to students of both sexes in any of the biological sciences including Anatomy, Biochemistry, Botany, Genetics, Physiology, Microbiology and Zoology.

ANNE MOLSON SCHOLARSHIP. — $200, open only to men and women students in the Physical Sciences proceeding from the penultimate year into the Final year. Awarded by the Faculty of Science on the recommendation of the Departments of Physics, Chemistry, and Mathematics.

PENHALLOW SCHOLARSHIP IN BOTANY. — $250, open to men and women entering an intermediate year or the Final year of the undergraduate course. Awarded by the Faculty of Science on the recommendation of the Department of Biology.

PRINCE OF WALES SCHOLARSHIP. — $150, open to students proceeding from the penultimate year into the Final year. Awarded for general distinction by the Faculty of Science on the student's complete academic record.

JANE REDPATH EXHIBITION. — Value $170, founded by the late Mrs. Redpath, to maintain an exhibition in Arts or Science. Awarded on the results of the initial year to the student with the highest average on the year's work. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of each faculty.

CARL REINHARDT SCHOLARSHIPS AND BURSARIES. — Established from the estate of the late Carl Reinhardt. To be used for scholarships or bursaries for undergraduate students in the Departments of Physics and Geological Sciences, and for scholarships or bursaries or in the support of their research for graduate students. Awards are made by the University Scholarships Committee on the recommendations of the Chairmen of the departments concerned. Any amount not used by one of the departments in any year may be taken up by awards in the other department if suitable candidates are available.

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES. — Two scholarships of $375 each and a number of bursaries are given by Mrs. Roy M. Wolvin in memory of her husband. One scholarship is restricted to men undergraduates in the Faculty of Engineering, which is awarded by the Faculty Scholarships Committee. The other scholarship is restricted to women undergraduates in the Faculty of Arts, the Faculty of Science, or the Faculty of Management, and is awarded by the University Scholarships Committee upon recommendations of the faculties concerned. The bursaries are open to students in any undergraduate faculty who have a good academic record and need financial assistance. Apply for bursaries to the Student Aid Office.

4.14.3 BURSARIES

ROBERT BRUCE BURSARIES. — Several bursaries of $100 each are open each year to "young men and women of promising abilities but of straitened circumstances in Arts, Science, or Engineering."*

CANADIAN TITANIUM PIGMENTS LIMITED BURSARIES. — Open to Canadian students in any year of the Faculty of Engineering or the Faculty of Science. Awarded on academic merit and financial need.*

DELTA PHI EPSILON SORORITY BURSARY. — Value $100, founded in memory of Edith Silver. — Open to a deserving woman student entering the penultimate year of the Faculty of Arts or of Science.*

HON. ROBERT JONES BURSARY. — One or more bursaries not exceeding $250 each in any one year are granted to needy students in the Faculty of Arts, Science or Engineering.*

4.14.4 PRIZES

HARRY BARKER MEMORIAL PRIZE IN ENGLISH. — Value $150, bequeathed by the late Miss Dinah Lee in memory of the late Mr. Harry Barker, awarded to the student with the highest standing in English in an initial year. Awarded on the recommendation of the Department of English, to whichever Faculty Scholarships Committee is appropriate.

CHEMICAL INSTITUTE OF CANADA SILVER MEDAL AND BOOK PRIZE. — Awarded to the student having the highest standing in the penultimate year of the Honours Course in Chemistry.

CORPORATION OF PROFESSIONAL CHEMISTS OF QUEBEC PRIZE. — A plaque will be awarded annually to the student with the highest standing in the final year in the Major course in Chemistry.

CORPORATION OF PSYCHOLOGISTS OF THE PROVINCE OF QUEBEC PRIZE. — A prize of $10 offered annually by the Corporation to a student in the Final year who has done the most distinguished work in Psychology throughout the course. Awarded on the recommendation of the Department of Psychology, to whichever Faculty Scholarships Committee is appropriate.

MARION McCALL DALY PRIZE. — See Section 4.16.3.

FANTHAM MEMORIAL PRIZE IN ZOOLOGY. — $180, established by a bequest from the late Dr. Annie Fantham in memory of Professor H. B. Fantham, her late husband. Awarded annually to the graduating student ranking highest in a Zoologically oriented Biology program.

DR. WILLIAM H. HATCHER PRIZE IN CHEMISTRY. — $25, established by the Department of Chemistry and awarded to the student with highest standing in Elementary Organic Chemistry, in which Dr. Hatcher lectured for so many years.

DR. W. B. LEWIS PRIZE. — See Section 4.1.2

**Apply to Student Aid Office.*

LOGAN PRIZES IN BOTANY AND ZOOLOGY. — $50, awarded as a prize or prizes on the recommendation of the Department of Biology for original summer collections. Candidates should consult the Department concerning the collections to be made.

ANNIE MACINTOSH PRIZE. — Present value $150. Endowed by friends and pupils of the late Annie Macintosh and by a special gift of the late Miss I. G. Macintosh. Offered as a prize or prizes to women students in such subject or for such work as the Faculty may determine.

CHESTER MACNAGHTEN PRIZES. — See Section 4.1.2.

ANNE MOLSON PRIZE IN CHEMISTRY. — $150, awarded to the student with the highest record among those graduating with First Class Honours in Chemistry.

E. G. D. MURRAY PRIZE IN MICROBIOLOGY. — $100, established by a number of friends, ex-students and ex-colleagues of the late Professor E. G. D. Murray to perpetuate his name at McGill. Awarded annually to the graduating student with the highest aggregate standing in a program in Microbiology and Immunology.

BORIS MUSKATOV PRIZE IN PSYCHOLOGY. — An annual prize of $85 in books has been endowed by Miss Serafina Muskatov in memory of her brother, Boris Muskatov, who died on January 9, 1948, while a student. This prize is offered to a student who has completed the penultimate year in the Faculty of Arts or of Science and has done the best work in the subject of Psychology. Awarded on the recommendation of the Department of Psychology, to whichever Faculty Scholarships Committee is appropriate.

PENHALLOW PRIZE IN BOTANY. — $85, endowed by the Arts Undergraduate Society in 1911, and awarded to the graduating student whose complete record shows the highest first class standing in Botany. At least 24 credits in the subject must have been taken and Honours students in Biology will receive preference. Awarded by the Scholarships Committee of the Faculty of Science on the recommendation of the Department of Biology.

CLIFFORD B. PURVES PRIZE IN CHEMISTRY. — $250, established by the McGill Student Chapter of the Chemical Institute of Canada in memory of the late Professor Clifford B. Purves. Awarded by the Scholarships Committee of the Faculty of Science on the recommendation of the Department of Chemistry, to the student with the highest average mark in the penultimate year of the Chemistry Major Program.

SOCIETY OF CHEMICAL INDUSTRY MERIT AWARDS. — Three Merit Awards consisting of a gold key and a year's subscription to "Chemistry and Industry" awarded to the three graduating students who achieve the best results in: (a) the B.Sc. course with Honours in Chemistry, or joint Honours in Chemistry and some related science; (b) the B.Eng. course in Chemical Engineering; (c) the Honours course in Biochemistry. Awarded by the Scholarships Committees of the Faculties of Science and Engineering, on the recommendation of the Chairmen of the departments concerned.

4.14.5 MEDALS

The following medals are awarded to the graduating students who stand highest in the First Class Honours List of the subjects named, provided the Faculty so recommends to Senate:

THE GOVERNOR-GENERAL'S SILVER MEDAL, awarded to the student standing highest among those graduating "with great distinction" in a major or faculty program of the Faculty of Arts or of Science. Awarded by a joint committee of the scholarships committees of the Faculties of Arts and of Science upon the recommendations of the faculties concerned.

THE LOGAN GOLD MEDAL, for Geology or Solid Earth Geophysics.

THE MAJOR HIRAM MILLS GOLD MEDAL, for Biology.

THE ANNE MOLSON GOLD MEDAL, for Mathematics and Natural Philosophy.

THE HORACE WATSON GOLD MEDAL, for Physics, awarded to the student graduating with the highest First Class standing in the Honours Physics Course.

4.14.6 LOAN FUNDS

McGILL SOCIETY OF ONTARIO LOAN FUND. — Established in 1938 by the Ontario Branch of the Graduates' Society of McGill.*

4.15 OPEN TO STUDENTS IN THE SCHOOL OF SOCIAL WORK

UNIVERSITY SCHOLARSHIPS. — See Section 4.1.1.

4.15.1 BURSARIES AND LOANS

General information on bursaries and/or loans may be obtained from the Student Aid Office.

Apply to Student Aid Office.

Some sources exist for both loans and bursaries through the School. Inquiries may be made at the time of application for admission to the School. Since the School does not receive all the resources for bursary and/or loan purposes until late during the first term, students should endeavour to make other arrangements for their financial needs, whenever possible, prior to entering the School.

Usual funds available from the School include:

(1) General Bursary Fund
(2) Frances Anderson Memorial Bursary
(3) J. A. Klein Memorial Bursary
(4) Alumni Bursary

4.15.2 FEDERAL SCHOLARSHIPS AND BURSARIES

Under the Federal Welfare Grants program, a limited number of bursaries are available each year to students who commit themselves to enter employment in approved welfare programs. These bursaries are administered and partly financed by the various provinces (with the exception of Quebec which has not been participating in the plan). Application should be made to the Deputy Minister, Department of Public Welfare (or Department of Social Welfare) in the capital of the province where the applicant has legal residence.

The Federal Welfare Grants program also awards a number of scholarships based upon academic achievement. Application should be made to the Welfare Grants Division, Department of Health and Welfare, Ottawa, Ontario.

Overseas students should inquire of their governments concerning the availability of United Nations, Colombo Plan, or their country's own study grants.

4.15.3 PROVINCIAL

Students registered in the Bachelor of Social Work program are eligible for provincial assistance from their Departments of Education as outlined in Section 2.4.

4.15.4 VOLUNTARY AGENCIES

Local or national voluntary agencies often offer bursaries similar to those of the Provinces. Information may be obtained from the School.

4.16 OPEN TO WOMEN STUDENTS AT McGILL

4.16.1 SCHOLARSHIPS

MARGARET JANE ALLAN SCHOLARSHIP. — See Section 4.2.2.

McLENNAN-ETHEL HURLBATT SCHOLARSHIP. — Established in memory of the late Miss Ethel Hurlbatt by a legacy from the late Miss Isabella McLennan to the Royal Victoria College. Awarded by the University Scholarships Committee with the approval of the Warden of the Royal Victoria College or her delegate to a woman student on the basis of academic record and financial need.

MARGARET WILSON SCHOLARSHIPS. — See Section 4.1.1.

ROY M. WOLVIN MEMORIAL SCHOLARSHIP. — See Section 4.2.2.

4.16.2 BURSARIES

ALPHA OMICRON PI BURSARY. — A bursary of $100 is given by the Alpha Omicron Pi Mothers' Club for a woman student, resident in Royal Victoria College or non-resident. The award is made by the Student Aid Office on the recommendation of the Warden of the Royal Victoria College to a candidate with good academic standing and financial need.

DELTA PHI EPSILON SORORITY BURSARY. — See Section 4.2.3.

FROTHINGHAM BURSARIES. — See Section 4.1.1.

HELEN REYNOLDS BURSARY. — Awarded annually by the Student Aid Office in consultation with the Warden of the Royal Victoria College to a woman undergraduate in any degree course who has completed at least one year's study on this campus. The award is made to a student in financial need who has satisfactory academic standing.

MURIEL V. ROSCOE BURSARY. — Awarded annually by the Student Aid Office in consultation with the Warden of the Royal Victoria College to a woman undergraduate in any degree course who has completed at least one year's study on this campus. The award is made to a student in financial need who has satisfactory academic standing.

4.16.3 PRIZES

EDMUND HENRY BOTTERELL PRIZE. — A prize of $450, bequeathed by the late Mrs. Florence A. Redpath. Awarded by the University Scholarships Committee to a woman student who has completed the initial year and is entering the intermediate year(s) in the faculties of Engineering, Management, Music, Education, Arts, Science and the Schools of Nursing and Physical and Occupational Therapy. At present the award is made to a student whose academic interests and record combined with personal qualities indicate marked promise.

DORA FORSYTH PRIZE. — $125, bequeathed by the late Miss Jeanie Forsyth for English Literature. Open to women only and awarded to a candidate recommended by the Department of English and approved by the Faculty of Arts.

ANNIE MACINTOSH PRIZE. — Present value $150, endowed by friends and pupils of the late Miss Annie Macintosh. Offered as a prize or prizes to women students in such subject or for such work as the Faculty of Science may determine.

MARION McCALL DALY PRIZE. — $400, awarded each year to a woman student who has completed two years at McGill and is continuing in a third year in the Faculty of Arts, the Faculty of Science, the Faculty of Management, or the Faculty of Engineering (including Architecture) at the University. Awarded by the University Scholarships Committee upon the recommendations of the faculties concerned. In making the award the following is taken into account: (a) the candidate's promise of making a definite contribution to Canadian life, (b) financial need, and (c) academic record.

WOMEN'S PERSONNEL GROUP OF MONTREAL BOOK PRIZE. — See Section 4.2.4.

LOAN FUNDS (see Section 4.1).

4.16.4 SPECIAL AWARDS ADMINISTERED BY A COMMITTEE OF THE ALUMNAE SOCIETY

4.16.4.1 McGill Alumnae Scholarships

The following scholarships have been established by the McGill Alumnae Society and are awarded annually to distinguished women students, based on recommendations from the Faculties concerned.

Arts

GEORGINA HUNTER SCHOLARSHIP. — Established in memory of the late Georgina Hunter, a member of the first graduating class of women at McGill University, the first President of the Alumnae Society, and a former Principal of the High School for Girls, Montreal.

ETHEL HURLBATT SCHOLARSHIP. — Established in memory of the late Miss Ethel Hurlbatt, a former Warden of the Royal Victoria College.

CATHERINE I. MACKENZIE SCHOLARSHIP. — Established in memory of the late Miss Catherine I. Mackenzie, B.A. 1904, former Principal of the High School for Girls, Montreal.

ISABELLA McLENNAN SCHOLARSHIP. — Established in memory of the late Miss Isabella McLennan.

SUSAN CAMERON VAUGHAN SCHOLARSHIP. — Established in honour of the late Mrs. Walter Vaughan, a former Warden of the Royal Victoria College.

Science

CARRIE DERICK SCHOLARSHIP. — Established in honour of the late Professor Carrie M. Derick, B.A. 1890, M.A. 1890, first woman professor at McGill.

75th ANNIVERSARY SCHOLARSHIP. — Established in honour of the Alumnae Society's 75th anniversary.

In Faculties other than Arts or Science

HELEN R. Y. REID SCHOLARSHIP. — Made possible by a legacy from the estate of the late Dr. Helen R. Y. Reid, B.A. 1889, LL.D. 1921, and awarded by the University Scholarships Committee to a distinguished woman student in faculties other than Arts or Science.

Each scholarship has a maximum value usually not exceeding $500 and a minimum value of $100. The winners are interviewed by the Alumnae Scholarship Committee who determine the value of each award. The scholarships are awarded on academic merit, the amount of the award is based on financial need.

4.16.4.2 **McGill Alumnae Bursaries**

Eight bursaries, of which five are named to honour distinguished women scholars, are awarded annually by the McGill Alumnae Society. The awards are made to women students in financial need who have satisfactory academic standing. The amount of these bursaries is determined by the Alumnae Scholarship Committee. Applications should be made to the Student Aid Office.

ISABEL BRITTAIN BURSARY. — Named in honour of Miss Isabel Brittain, B.A. 1894, M.A. 1911, twice President of the Alumnae Society and former English teacher at the High School for Girls, Montreal.

VIRGINIA CAMERON BURSARY. — Established in 1967 in memory of Miss Alice Virginia Cameron, B.A. 1925, Deputy Registrar of McGill, a former President of the Alumnae Society, Honorary Life Member of the Graduates' Society and a former President of the University Women's Club. Open to women students entering the penultimate year in the Faculty of Arts or of Science at McGill.

EUNICE PATTON HOOVER BURSARY. — Established in memory of the late Mrs. Hoover by her husband and friends.

GLADYS MURRAY BURSARY. — Established by the Alumnae Society in memory of the late Mrs. Gladys Murray, for thirty-five years Secretary to the Warden of the Royal Victoria College.

LUCIE TOUREN-FURNESS BURSARY. — Named in honour of Madame A. W. Furness, retired Associate Professor of French at McGill.

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McGill University

POST-GRADUATE FELLOWSHIPS, SCHOLARSHIPS, BURSARIES, PRIZES and LOAN FUNDS 1973-74

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

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2 GRADUATE FELLOWSHIPS, SCHOLARSHIPS, BURSARIES, PRIZES AND LOAN FUNDS

2.1 DEMONSTRATORSHIPS AND ASSISTANTSHIPS

Most of the departments which offer laboratory courses require the services of some graduate students as Demonstrators. These may be employed up to 12 hours weekly during the session without losing status as full-time graduate students, and salaries vary from approximately $1,200 to $2,000, though shorter hours and smaller salaries are preferred in some departments.

Some of these departments are also able to pay graduate students as Research Assistants from special research funds, and in most though not all cases the research in question can be used by the student for his thesis. Some of the departments in the humanities and social sciences are able to employ graduate students as Teaching Assistants. In all cases the appointment is recommended by the Chairman of the department concerned on the basis of the documents supplied along with the applications for admission.

It is not the policy of the University to waive tuition or other fees for Demonstrators, Assistants, or Fellows, though in some cases a fellowship may consist of a basic stipend plus the amount of the fees, while certain graduate scholarships cover the cost of fees only. Generally speaking, demonstratorships and fellowships provide subsistence throughout the academic session only, while research assistantships may run throughout the calendar year (though some are available in the summer months only); in no case are the funds adequate to defray any part of the cost of coming from or returning to a distant country.

2.2 FELLOWSHIPS AND SCHOLARSHIPS

Fellowships open to graduate students fall into three groups. Some are awarded by institutions or bodies other than McGill, which have their own regulations and their own application forms obtainable from them. Secondly, there are those for which application should be made to the Fellowships Office of the Graduate Faculty. Application forms should be obtained from this Office, and all of these applications should be completed by February 1. Thirdly, there are those for which application should be made to some other designated professor or official at McGill University; in most of these cases no form is required and a brief letter of application is sufficient.

The probability of foreign students obtaining financial aid from the Graduate Faculty in the first year of enrolment is small.

Application *by Canadian students* for a fellowship and financial aid in general should be made on forms obtainable from the Fellowships Office and accompanied by the usual supporting documents such as transcripts and letters of recommendation. Unless the candidate is already a student in the Graduate Faculty, a fellowship application should be preceded by an application for admission to the Faculty. (It should be noted that *separate sets of transcripts and letters of recommendation* are required for scholarship as opposed to admission applications, and that this requirement extends to students *already registered in the Graduate Faculty* as well as to applicants for admission.) The awarding committees will base their nominations upon these documents, and will announce their awards on or before April 1. As far as possible each applicant will be considered for every award for which he is eligible. It is perfectly in

order for a student to apply for admission to the Faculty with the proviso that admission cannot be accepted unless financial aid can also be made available. Such a proviso does not obligate the University in any way.

Applicants for fellowships and scholarships should note that these are awarded on a competitive basis, in the light of established academic merit.

Application by *non-Canadian students* for a fellowship and financial aid should be made directly to the departments in which they plan to study.

2.3 PROVINCIAL BURSARIES AND LOANS

In all cases, a basic qualification is that the applicant must be a Canadian citizen or a landed immigrant with one year's residence and domicile in the province to which he applies.

In all provinces, except Quebec, the provincial authority listed below administers the Canada Student Loan Plan (Federal) as well as their own programs. The addresses are as follows:

Quebec: Apply for a Quebec registration card, after June 1, at the Student Counselling-Student Aid Office, 3465 Peel St., McGill University, P.O. Box 6070, Montreal 101, P.Q.

Alberta: Student Assistance Board, Department of Education, Edmonton, Alberta.

British Columbia: The British Columbia Student Aid Loan Committee, c/o Department of Education, Victoria, B.C.

Manitoba: Student Aid Officer, Department of Education, Legislative Buildings, Winnipeg, Manitoba.

New Brunswick: Deputy Minister, Department of Youth and Welfare, Fredericton, New Brunswick.

Newfoundland: Canada Student Loans Authority, Department of Education, Confederation Building, St. John's, Newfoundland.

Northwest Territories: c/o Education Division, Department of Northern Affairs and Resources, 150 Kent St., Ottawa, Ontario.

Nova Scotia: Nova Scotia Canada Student Loans Committee, Department of Education, Box 578, Halifax, Nova Scotia.

Ontario: Department of Colleges and Universities, Parliament Buildings, Queen's Park, Toronto 182, Ontario.

Prince Edward Island: Department of Education, Charlottetown, P.E.I.

Saskatchewan: Department of Education, Legislative Buildings, Regina, Saskatchewan.

Yukon Territory: The Students Financial Assistance Awards Committee, c/o Superintendent of Schools, Box 2703, Whitehorse, Yukon Territory.

2.4 AWARDS FROM FEDERAL AGENCIES

Many government departments (e.g. the Department of the Solicitor General and the Department of Labour) offer financial assistance to graduates pursuing studies relating to the department's work. Government agencies, such as the Central Mortgage and Housing Corporation also offer scholarship aid.

The three most important sources of federal aid to graduate students are the Canada Council, the National Research Council of Canada, and the Medical Research Council.

Canada Council. The Canada Council offers fellowships and grants in the social sciences and humanities at the master's and doctoral level. These categories extend to undertakings of an interdisciplinary nature, but not to those closely identified with the physical and biological sciences, or with professional training.

Informative leaflets and application forms are obtainable from departmental offices in the social sciences, humanities and related disciplines, from the Fellowships Office of the Graduate Faculty, or from: The Canada Council, P.O. Box 1047, Ottawa, Ontario, K1P 5V8.

National Research Council. The National Research Council offers a number of postgraduate awards to assist students in undertaking graduate study and research, and a limited number of postdoctorate fellowships for those wishing to add to their experience by specialized training. These scholarships and fellowships are open to men and women on equal terms and are awarded on the basis of high scholastic achievement and evidence of capacity to do research. The types of awards available are postgraduate scholarships, bursaries, and postdoctorate fellowships. These may be granted for study and research in the fields of agriculture, biology, chemistry, physics, geology, physical geography, mathematics, engineering and experimental psychology. At the time of application for a Scholarship, an applicant must be either a Canadian citizen or if he is a landed immigrant, he must have completed one full year of study and/or research at a Canadian University.

Medical Research Council. A limited number of awards are offered by the Medical Research Council to highly qualified graduate students who are undertaking full-time training and research leading to an M.Sc. or Ph.D. degree under the supervision of members of departments within the Faculties of Medicine and Dentistry. These awards are designated primarily for Canadian citizens or landed immigrants. Awards may also be made to applicants who are neither Canadian citizens nor landed immigrants but such students must be highly recommended by their prospective supervisor. The awards available are of two types: studentships and fellowships. Studentships are open to applicants holding an Honours B.Sc. degree (or its equivalent) who have a high academic standing. Fellowships are offered to graduates in Medicine, Dentistry or Veterinary Medicine for full-time training in research in the health sciences. Fellowships are also available to holders of a Ph.D. degree in a suitable field who wish to undertake postdoctoral training in the biomedical field.

2.5 INTERNATIONAL AND PRIVATE AWARDS

Commonwealth Scholarship and Fellowship Plan. At the request of the Government of Canada, the Association of Universities and Colleges of Canada provides a secretariat for academic administration of the Commonwealth Fellowship plan. This plan makes it possible for Canadians to undertake graduate study or research in many parts of the Commonwealth as part of a Canadian graduate degree program, in addition to bringing graduate students from other Commonwealth countries to Canada.

Students from other Commonwealth countries, in Canada on *student visas,* may apply to their home country for these fellowships. Students with *landed immigrant status* may apply to any other Commonwealth country for these awards, with the understanding that they will return to Canada when their graduate work is completed.

Association of Universities and Colleges of Canada. The Awards Service of the Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ontario, does not itself offer any awards but it does administer several national and international programs on behalf of Canadian and foreign donors, both private and governmental. Inquiries from students regarding financial aid can be addressed directly to the Association.

There are several other programs which enable foreign students to come to Canada to study, sponsored by the Canadian International Development Agency, under the

Department of External Affairs. These include the Colombo Plan, Economic Assistance to French-Speaking West Africa, Special Commonwealth Africa Assistance, Caribbean Assistance Program. Interested students can apply through the Ministry of Education or through the appropriate government department in their own country.

Foundations and Private Agencies. Thousands of professional associations, foundations and companies offer financial support for the graduate student. Details about these can be found in the following publications which are available in large public libraries, university reference libraries and consulate or embassy offices.

Awards for Graduate Study and Research: perhaps the most useful to Canadian students, it lists several thousand awards available to Canadians and to those studying in Canada. Prepared by the Bureau of Statistics, it is available from Information Canada (Catalog no. 81-541).

Study Abroad: A UNESCO publication lists awards tenable in Canada, as well as in other countries.

Fellowships and Scholarships Offered by Private Donors and Foreign Governments for Canadian Students: available from the Association of the Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ontario.

Fellowships in the Arts and Sciences: published by the American Council on Education.

Annual Register of Grant Support: lists the major awards distributed by American agencies.

Grants Register: lists postgraduate awards in the English-speaking world.

3 GRADUATE FELLOWSHIPS AND SCHOLARSHIPS

The following graduate awards are divided into four sections. In sections 3.1, 3.2, and 3.3 the awards are listed in alphabetical order of the undergraduate faculties from which applicants may have proceeded. Section 3.5 contains the names of awards for which graduates of other universities who wish to pursue advanced studies at McGill may be eligible. Not all awards listed are open for competition each year; further, awards open for competition may not be granted if none of the applications is considered meritorious. As changes of deadline dates for such fellowships are frequent, applicants are urged to check with the Fellowships Office of the Graduate Faculty.

Applications for fellowships and scholarships should be made by letter, except in the cases where they are to be directed to the Fellowships Office of the Graduate Faculty. In such cases the Fellowships Office will supply application forms. Applicants should simultaneously also ask for application forms for admission to the Faculty, unless this has been previously granted.

3.1 FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT McGILL UNIVERSITY ONLY

(See also Secion 3.2).

3.1.1 OPEN TO GRADUATES IN TWO OR MORE FACULTIES

ALCAN FELLOWSHIP. — Value $3,500, plus a grant to the Department for research expenses. Open to graduates of any university admitted to McGll as resident candidates for a Master's or Doctor's degree in Metallurgy and related subjects, and is renewable. Apply to the Dean of the Graduate Faculty through the Department of Mining and Metallurgical Engineering before February 1.

MAX BINZ BURSARIES FOR FOREIGN STUDENTS. — Established by the estate of the late Mr. Max Binz. These Bursaries are valued at $1,000 per annum and are renewable, but are not normally tenable concurrently with a major scholarship or fellowship. The Binnz Bursaries are intended to help defray the expenses of graduate students coming to McGill from overseas countries (including South and Central America and Mexico). One of the purposes of the award program is to encourage the continued attendance at McGill of students of a wide variety of cultural backgrounds. According to the conditions of the award, foreign nationals who are Canadian landed immigrants (and therefore eligible for several categories of Canadian financial assistance) are not eligible for the Bursaries. Application forms can be obtained from the Graduate Faculty Fellowships Office (Dawson Hall) and must be submitted by April 1.

BRONFMAN FELLOWSHIPS IN COMMERCE AND ECONOMICS. — The Graduate Faculty offers two fellowships of $2,000 each plus tuition fees to men and women, preferably with research experience, who are graduates in Commerce or Economics from accredited universities. The holders are entitled to apply again in a subsequent year, will be expected to be in residence at McGill throughout the academic session, and to be candidates for a higher degree at McGill. A little teaching work may be required. Apply to the Dean of the Graduate Faculty, through the Department of Economics, before February 1.

J. B. COLLIP FELLOWSHIPS IN MEDICAL RESEARCH. — Up to three fellowships of $3,000 each are awarded for study at McGill in Anatomy, Bacteriology, Biochemistry, Histology, Pathology, Pharmacology, or Physiology. Candidates must hold the M.Sc. or Ph.D. in one of these subjects, or a degree in medicine, from a recognized university. Graduates of the McGill medical faculty may be permitted to hold the fellowship at an approved institution elsewhere. Apply before February 1 to the Secretary of the Faculty of Medicine, from whom application forms and further particulars may be obtained.

GLASGOW EXCHANGE SCHOLARSHIP. — Established to enable a McGill graduate to spend two sessions of postgraduate work at the University of Glasgow and for a graduate of the University of Glasgow to spend two sessions of postgraduate work at McGill. The awards are available for two years and are awarded only every second year. Open to degree and non-degree candidates. Glasgow will waive fees for the student from McGill and provide accommodation in a hall of residence plus a small cash award. The value of the award at McGill for the student from Glasgow is $3,000 per annum. Vacancies in the program arise in odd-numbered years and interested Glasgow students should seek further information from the Clerk of Senate, University of Glasgow, Glasgow, W.2, Scotland.

GOTTESMAN SCHOLARSHIP. — The D. S. and R. H. Gottesman Foundation offers $3,000 per year (supplemented by $500 per year), for research in any field of science or engineering on a topic of interest to the pulp and paper industry, to an American, a Canadian, or a citizen of the British Commonwealth, who is a graduate of a recognized university. He is expected to register at McGill as a candidate for a higher degree. Awarded by the Education Committee of the Pulp and Paper Research Institute. Apply to the Chairman of that Committee by May 1.

GRADUATE FACULTY SUMMER RESEARCH FELLOWSHIPS. — A limited number of fellowships of up to $1,000 each, are available through the generosity of the McConnell Foundation. These are intended to enable graduate students in the Humanities and Social Sciences to undertake summer research towards the M.A. or Ph.D. degree. Apply in writing to the Fellowships Office of the Graduate Faculty before April 1. Applications must be supported by a letter of recommendation from the candidate's research adviser.

WILLIAM HENRY HOWARD SCHOLARSHIPS. — Three scholarships of $900 each bequeathed in 1955 by the late Mrs. Florence P. Howard in memory of her husband. Open to undergraduate and graduate students in Metallurgy, Chemical Engineering and Geological Sciences. Awarded and renewable by the Graduate Faculty Scholarships Committee upon the recommendations of the Departments concerned for scholastic ability and general promise.

T. STERRY HUNT AWARDS IN CHEMISTRY. — Four $200 awards for best demonstrating. Awarded by the Department of Chemistry. No application necessary.

INTERNATIONAL BUSINESS MACHINES FELLOWSHIPS. — A stipend of up to $4,000 per year to support graduate research and study in Computer Science. Renewable. Apply to the Director of the School of Computer Science before April 1.

LeROY MEMORIAL FELLOWSHIP IN GEOLOGICAL SCIENCES. — Value $1,500 established by friends of Captain O. E. LeRoy (Arts, 1895), who was killed at Passchendaele, in October, 1917. May be awarded annually to a student who desires to proceed with postgraduate studies in Geology at McGill. The recipient may be asked to assist in teaching in the Department. Awarded by the Chairman of the Department of Geological Sciences in consultation with the Principal.

J. B. LYNCH FELLOWSHIP IN GEOLOGICAL SCIENCES. — $3,000 for an outstanding student commencing or continuing postgraduate studies in Geological Sciences. Apply to the Dean of the Faculty of Graduate Studies and Research through the Department of Geological Sciences before February 1.

POST-GRADUATE FELLOWSHIPS

LYNDEN LAIRD LYSTER AWARD IN PARASITOLOGY. — Value approximately $3,500. Open to graduates of any university admitted as candidates for a Master's or Doctor's degree in Parasitology at McGill Apply by May 1 to the Dean of the Graduate Faculty through the Director of the Institute of Parasitology.

OTTO MAASS MEMORIAL FELLOWSHIP. — Value $4,300 per annum for graduate students in Chemistry, Chemical Engineering or Mechanical Engineering at McGill who are conducting their thesis research in the Pulp and Paper Research Institute of Canada. The fellowship is renewable and may be supplemented by nominal amounts of demonstrating in the University. Apply to the Chairman, Education Committee, Pulp and Paper Research Institute of Canada before February 1.

J. W. McCONNELL MEMORIAL FELLOWSHIPS. — These fellowships were established by the J. W. McConnell Foundation to support postgraduate studies and research at McGill University, and so to strengthen, in quality and in numbers, the academic staffs of Canadian universities and schools. The fellowships may be held by students registering in any postgraduate research program at McGill, but only those whose homes are in Canada or who intend to make their homes in Canada, are eligible to apply. The fellowships are intended to cover full fees, living expenses, the cost of books and such travelling as a Fellow's studies may require. The normal value of a first-year award is $3,600 plus fees, and further allowances are payable for dependents and for progression to upper years of study. The initial award is normally for a period of two years, but the fellowships are intended to carry a student through to a doctoral degree, and may normally be held up to the fifth year of a doctoral program (and for not more than five years). Fellows will be expected to spend the full calendar year (with the exception of a month's summer holiday) on their studies, and may not accept any remunerative appointment during the tenure of the fellowship without permission. Application forms may be obtained from the Fellowships Office of the Faculty of Graduate Studies and Research and completed forms must be returned to this office before February 1.

ALEXANDER McFEE FELLOWSHIP. — Value $3,500, open to graduates of any approved university who are resident full-time candidates for higher degrees or diplomas at McGill. The award will be made on a rotational basis in Physics, Chemistry, and Medical Sciences (with preference for Cancer research).

COLL McFEE MEMORIAL SCHOLARSHIP. — Established in 1968 from a bequest of the late Miss Julia Beatrice Anderson McFee in honour of her father Coll McFee and her brother Malcolm Charles Coll McFee, B.A. (1905), B.Sc. (1908), M.Sc. to a graduate student proceeding to the Master of Education (Chemistry) degree, or if a meritorious candidate does not apply, to a graduate of the McGill Chemistry course who is proceeding to an M.Sc. or Ph.D. degree in the Department of Chemistry. Send applications to the Chairman, Department of Chemistry, before June 1.

ISABELLA C. McLENNAN FELLOWSHIP. — $750. Awarded by the Graduate Faculty Scholarships Committee to a woman student in the Faculty of Graduate Studies and Research on the basis of academic merit and financial need. Apply to the Fellowships Office of the Graduate Faculty before February 1.

SIR VINCENT MEREDITH FELLOWSHIP IN AGRICULTURAL ECONOMICS. — $2,500 per year, tenable for a two-year period. Candidates must qualify for graduate work in Economics at the Ph.D. level and must pursue research or thesis work on an approved subject in the area of Agricultural Economics. Limited teaching or other duties are required. Apply to the Department of Agricultural Economics, Macdonald College, St. Anne de Bellevue, Quebec, before February 1.

MIRON FELLOWSHIP IN CONCRETE STUDIES. — Established by Miron Company Limited for advanced studies in some phase of the concrete industry in the Department of Civil Engineering. Value $900, plus an additional $300 to the University to be used in the best interests of the investigation. Applicants must be Canadian citizens, normally resident in Canada or those who have taken steps to become Canadian citizens, and graduates in science or engineering of a recognized university. Apply to the Dean of the Graduate Faculty through the Department of Civil Engineering before February 1.

FRANK L. MITCHELL FELLOWSHIP. — Value $4,300 per annum for graduate students in Chemistry, Chemical Engineering or Mechanical Engineering at McGill who are conducting their thesis research in the Pulp and Paper Research Institute of Canada. The fellowship is renewable and may be supplemented by nominal amounts of demonstrating in the University. Apply to the Chairman, Education Committee, Pulp and Paper Research Institute of Canada, before February 1.

THE RICHARD T. MOHAN SCHOLARSHIP. — Established in 1971 to honour the memory of the late Richard T. Mohan. To be awarded to a postgraduate student in the Department of Chemistry proceeding to the Ph.D. degree. Applications to the Chairman, Dept. of Chemistry, before June 1.

PULP AND PAPER RESEARCH INSTITUTE OF CANADA GRADUATE STUDENTSHIPS. — At least two studentships, value $3,500 per annum for graduate students in Chemistry, Chemical Engineering or Mechanical Engineering at McGill who are conducting their thesis research in the Pulp and Paper Research Institute of Canada. Renewable and may be supplemented by nominal amounts of demonstrating in the University. Apply to the Chairman, Education Committee, Pulp and Paper Research Institute of Canada, before February 1.

CLIFFORD B. PURVES FELLOWSHIP. — Value $4,300 per annum for graduate students in Chemistry, Chemical Engineering or Mechanical Engineering at McGill who are conducting their thesis research in the Pulp and Paper Research Institute of Canada. The fellowship is renewable and may be supplemented by nominal amounts of demonstrating in the University. Apply to the Chairman, Education Committee, Pulp and Paper Research Institute of Canada, before February 1.

QUEBEC IRON AND TITANIUM CORPORATION FELLOWSHIP IN METALLURGY. — Value $2,000 plus fees, plus a grant to the Department for research expenses. Open to graduates of any university admitted to McGill as candidates for a Master's or Doctor's degree in Metallurgy and related subjects, and is renewable. Apply to the Dean of the Graduate Faculty through the Department of Mining and Metallurgical Engineering before February 1.

CARL REINHARDT SCHOLARSHIPS AND BURSARIES IN PHYSICS AND GEOLOGICAL SCIENCES. — Established from the estate of the late Carl Reinhardt. To be used for scholarships or bursaries for undergraduate students in the Department of Physics and Geological Sciences, and for scholarships or bursaries or in the support of their research for graduate students. Awards are made by Fellowships Office, Faculty of Graduate Studies and Research on the recommendations of the Chairmen of the Departments concerned.

SOLVAY FELLOWSHIP. — Value $3,500 plus tuition fees, offered for the first year of study in the Faculty of Graduate Studies and Research. Tenable in any Department of the Faculty, and open to men and women equally. The holder must have graduated in any undergraduate Faculty of McGill in the session prior to that for which the award is given, and must obtain permission to proceed to graduate study. No teaching duties are required of the holder, who may not hold any other fellowship or bursary, nor receive a salary for teaching or other duties, during his tenure. Apply to the Fellowships Office of the Graduate Faculty before February 1.

STEINBERG GRADUATE FELLOWSHIPS. — Established by Mr. Sam Steinberg of Steinberg's Limited. Five fellowships of $3,000 each plus tuition fees for M.A. or Ph.D. students of outstanding merit in the Humanities and Social Sciences without restriction as to sex, race, creed or colour. Preference will be given to Canadian residents or to students likely to make a continuing contribution to Canadian life. Apply to the Fellowships Office of the Graduate Faculty before February 1.

IRVING ORRIN VINCENT BURSARY. — Established by Mrs. J. B. Owen in memory of her father, the late Irving Orrin Vincent, B.A. 1907, M.A. 1908, a noted teacher and Principal of Edward VII School in Montreal from 1912 until his death in 1920. Awarded annually by the Student Aid Office on the basis of academic merit and financial need to a graduate student in the Faculty of Arts proceeding towards an M.A. degree in Classics or Education, or M.Ed., or Doctorate in Classics or Education.

HARRISON WATSON SCHOLARSHIP. — Established in 1953 by a bequest from the late Harrison Watson and Ruth Appleton Watson in memory of their only son, Captain Aubrey Wentworth Harrison Watson, D.S.O., M.C. Value not less than $1,500, open to men and women graduates of an approved Faculty of Medicine or holders of M.Sc. or Ph.D. degrees or approved candidates for Ph.D. degrees at McGill who have completed one year of research and study towards their degree and also to candidates who have spent at least one year in postgraduate training. Awards of higher value may be made to candidates with higher qualifications. Renewable for two additional years. Preference is given to McGill graduates. The purpose of the scholarship is the encouragement of research into the causes and cure of tuberculosis and other diseases of an allied character. Tenable only at McGill unless the scholar is a graduate in Medicine of McGill in which case it is also tenable at an approved institution elsewhere. The holder must devote his full time for at least ten consecutive months to the object of the award. Application forms obtained from the Secretary of the Faculty of Medicine must be submitted before February 1.

ARTHUR WILLEY MEMORIAL BURSARY. — $540. To be awarded on the recommendation of the Biology Department. Apply to the Dean of the Graduate Faculty through the Department of Biology before February 1.

3.1.2 OPEN TO GRADUATES IN AGRICULTURE ONLY

WALTER M. STEWART POSTGRADUATE SCHOLARSHIP IN AGRICULTURE. — Value $1,000, established to permit promising students from the Faculty of Agriculture of Laval University to

undertake postgraduate studies at Macdonald College. Apply to the Dean of the Faculty at Laval before May 1 each year. Not awarded to students who would, including this scholarship, be in receipt of scholarships, fellowships, assistantships, etc. to a value of $2,000 or more per annum.

3.1.3 OPEN TO GRADUATES IN ARTS OR SCIENCE

PHILIP CARPENTER FELLOWSHIP IN BIOLOGY. — Value $1200, established in 1892 by Mrs. Philip P. Carpenter to provide "a postgraduate teaching fellowship or scholarship in Natural Science or some branch thereof in the Faculty of Arts of McGill College." Awarded to a graduate who has been in residence for at least one academic session and may be held in conjunction with a departmental demonstratorship. No application necessary. The Department makes the appointment from its current cadre of Demonstrators.

HEWITT MEMORIAL BURSARY FUND. — A bequest from the late Frederick T. O'Reilly-Hewitt in memory of his parents, the late Frederick Daniel Hewitt and the late Maria Stenson Hewitt for bursaries. Open to students in the Faculty of Arts or to students in the Humanities and Social Sciences in the Faculty of Graduate Studies and Research. Awarded by the Student Aid Office on the basis of financial need and academic promise without restriction as to sex, race, creed, or colour.

MARY KEENAN SCHOLARSHIP IN ENGLISH. — $200, awarded by the Department of English to a student proceeding at McGill from the B.A. to the M.A. in English. The need and ability of the student are considered.

KIMBERLY-CLARK OF CANADA FELLOWSHIP. — Value $3,000 (supplemented by $500 per year), open to graduate students in the Department of Chemistry who are conducting thesis research in the Physical Chemistry Division of the Pulp and Paper Research Institute of Canada. Apply to the Dean of the Graduate Faculty through the Department of Chemistry before February 1.

SAMUEL LAPITSKY SCHOLARSHIP. — $652. To be awarded on the joint recommendation of the Departments of Sociology and Anthropology. Apply to the Dean of the Graduate Faculty through the Departments of Sociology and Anthropology before February 1.

ALEXANDER MACKENZIE FELLOWSHIP IN POLITICAL SCIENCE. — Value $2,000, plus tuition fees. Tenable by a graduate of any accredited university, conditional upon his acceptance by the Faculty of Graduate Studies and Research in the field of Political Science. A certain amount of tutorial and teaching work is required. Under certain conditions, after consultation with the Department of Political Science, this fellowship may be held for a second or third year. Each candidate should send (i) a letter of application, (ii) a certified copy of his academic record, (iii) not more than three testimonials, to the Department of Political Science before February 1.

DAVID STEWART MEMORIAL FELLOWSHIPS. — Two fellowships, one in the Physical Sciences and one in the Biological Sciences, have been established by a bequest of the late Miss Agnes Stewart in memory of her father, the late David Stewart. Awarded to candidates who demonstrate ability of a high order and who are likely to enter a career of university teaching. For students in the first year of graduate study the value is $1,400 plus tuition fees, and $3,500 plus tuition fees for students in the upper years. Awarded for one year only but holders may apply for renewal. Apply to the Fellowships Office of the Graduate Faculty before February 1.

ARTHUR C. TAGGE FELLOWSHIP IN THE HUMANITIES AND SOCIAL SCIENCES. — Value $3,500, plus tuition fees. Tenable by a graduate of any approved university proceeding to a higher degree in any Department of the Humanities or the Social Sciences. Normally awarded for the first year of graduate study and not renewable, but exceptions may be made. Outstanding students in the last year of the undergraduate course, at McGill or elsewhere, should apply to the Fellowships Office of the Graduate Faculty before February 1.

XEROX FELLOWSHIP. — A fellowship of $4,500 established by Xerox Corporation for graduate research in Polymer Physical Chemistry and not normally renewable. Apply to the Dean of the Faculty of Graduate Studies and Research before February 1 through the Department of Chemistry.

3.1.4 OPEN TO GRADUATES IN ENGINEERING ONLY

SIR WILLIAM DAWSON FELLOWSHIP IN METALLURGY. — A research and teaching graduate award of $1,800, or one or more undergraduate awards totalling $1,800, in the Department of Mining and Metallurgical Engineering, endowed in memory of the late Sir William Dawson, principal of McGill University from 1855 to 1893. If, in any particular year, the Department has no candidate and for that same year the Department of Mining Engineering and Applied Geophysics has a suitable candidate for whom no fellowship is available this fellowship shall become available to the Department of Mining Engineering and Applied Geophysics.

JAMES DOUGLAS FELLOWSHIP IN MINING ENGINEERING. — A research and teaching fellowship of approximately $1,200 in the Department of Mining and Metallurgical Engineering endowed by the late Dr. James Douglas and open to qualified university graduates.

B. J. HARRINGTON BURSARY IN MINING ENGINEERING. — Approximately $600 supported by graduates in Mining Engineering in memory of the late Professor B. J. Harrington, awarded annually if a suitable candidate offers, and open to qualified university graduates.

MAJOR JAMES H. BRACE RESEARCH SCHOLARSHIPS. — A number of research scholarships, each $2,000 per annum, awarded from time to time to assist candidates for M.Sc. and Ph.D. degrees in engineering who wish to specialize in problems in thermodynamics, heat and mass transfer, hydraulics or aerodynamics, with particular relation to the development of equipment for the conversion of salt water to fresh water or for water pumping using solar or wind energy. Apply to the Director, Brace Research Institute, Macdonald College, Quebec.

IRON ORE COMPANY OF CANADA SCHOLARSHIPS. — Open to graduate students in Mining Engineering.

JOHN BONSALL PORTER SCHOLARSHIP. — Value $1,000, founded by Dr. W. W. Colpitts (B.Sc., 1899). Open to graduate students proceeding to the degree of M.Eng. in Civil, Mechanical, or Electrical Engineering, preferably in Civil Engineering. Apply to the Dean of the Faculty of Engineering not later than July 30. Applications from graduates of other universities must be accompanied by certified statements of academic standing and letters of recommendation.

HORACE G. YOUNG FELLOWSHIPS. — Awarded to graduates of McGill University who are conducting advanced research in mining or metallurgy. Two awards of $750 each are made annually, one tenable in the Department of Mining Engineering and Geophysics and the other in the Department of Metallurgical Engineering. In the event that there is no eligible student in one of the departments the two awards may be made in the other department. Awarded by the Faculty of Graduate Studies and Research on the recommendation of the Chairmen of the Departments of Mining and Metallurgical Engineering, to whom applications should be made before February 1.

WADDELL LOAN FUND. — Loans from this fund, founded by J. B. Waddell, may be made to graduates and undergraduates in any Department of Engineering. Apply to the Student Aid Office.

3.1.5 OPEN TO GRADUATES IN LAW ONLY

INSTITUTE OF AIR AND SPACE LAW SCHOLARSHIPS AND FELLOWSHIPS. — These may be available at a value of $1,750 to $2,500. Candidates must hold a law degree of high standing from an approved law school or must have equivalent professional standing. Apply to the Institute of Air & Space Law for further information before February 1.

3.1.6 OPEN TO GRADUATE STUDENTS IN MANAGEMENT ONLY

GOVERNMENT OF QUEBEC GRADUATE SCHOLARSHIPS. Competition is open only to Canadian citizens and to those who may certify that they are landed immigrants and that they have been residing in Quebec for one year at the time of their application. Type 2B — M.B.A. Scholarships (Jeunes Administrateurs). 50 scholarships available, valued at up to $6,000 for single students and up to $8,000 for married students, tenable for a period of 12 months. Applicant must hold a first university degree with two years of full-time experience in Quebec in some executive capacity in the field of industry, commerce or business or possess training or experience recognized as equivalent. Apply to the Student Aid Office, F. Cyril James (Administration) Building, McGill University, before January 15. Completed application forms must be returned to the Student Aid Office no later than January 31.

H. E. HERSCHORN GRADUATE SCHOLARSHIP. — Established in 1965, covering the amount of the current tuition fees and tenable by a student entering either the First or the Second year of the M.B.A. program. Apply to the Dean of the Faculty of Management.

McGILL ASSOCIATES GRADUATE FELLOWSHIPS IN MANAGEMENT. — Established by the McGill Associates, a group of Montreal business and professional men interested in the University, to ensure that the graduate degree program of the McGill Faculty of Management continues to attract students of a high academic and professional calibre. A number of fellowships are available, each with an annual value of up to $3,600, for students at the Master's level. This amount may be increased in the case of students proceeding to a doctoral degree. These fellowships are open to students registered in any postgraduate degree program of the Faculty of Management. Apply to the Dean of the Faculty of Management before May 1.

RODGIE McLAGAN FELLOWSHIPS IN MANAGEMENT. — Two fellowships of $1,500 each have been established by Canada Steamship Lines for graduate study in management. Apply by letter to the Dean of the Faculty of Management before May 1.

SEAGRAM BUSINESS FELLOWSHIPS OF THE SAMUEL BRONFMAN FOUNDATION. — Eight Type A awards of $1,000 are given annually by this foundation to first or qualifying year students enrolled in a Master's degree program. Eligibility is limited to Canadian citizens. Applicants for first year fellowships may apply directly to: Professor Jean-Paul Sallenave,

Awards Chairman, Canadian Association of Administrative Sciences, Faculty of Administration, Sherbrooke University, Sherbrooke, Quebec. Completed applications must be received before May 18.

Four Type B fellowships of $1,600 are given annually by this foundation to students in their final year of a Master's program or in any year of a Doctoral program. Eligibility is limited to Canadian citizens. Applications are submitted on behalf of candidates by the Dean of the Faculty of Management and interested students should contact him before March 1.

SOCIETY OF INDUSTRIAL ACCOUNTANTS OF CANADA BUSINESS FELLOWSHIPS. — Five fellowships of $1,200 each are available annually to students enrolled in a graduate business program at Canadian universities. Awards are to be granted to students whose program indicates an interest in Management Accounting and Accounting Research. Apply before April 1 to: Administrative Secretary, Fellowships Selection Committee, Society of Industrial Accountants of Canada, P.O. Box 176, 154 Main Street East, Hamilton, Ontario.

XEROX OF CANADA LIMITED FELLOWSHIP IN MANAGEMENT. — Value $2,000, established as a centennial project by Xerox of Canada Limited to encourage management studies at the graduate level. Open to students in the M.B.A. program and awarded by the Scholarships Committee of the Faculty of Management. Apply to the Dean of the Faculty of Management before May 1.

3.1.7 OPEN TO GRADUATES IN MEDICINE ONLY

A. A. BROWNE MEMORIAL FUND. — This fund of $10,000 is used either for a fellowship to be known as the "A. A. Browne Memorial Fellowship," or for a grant to a department to provide technical assistance, equipment, and supplies for medical research. The fellowship is open to graduates of any recognized medical school and is for the advancement of medical science, especially in Obstetrics and Gynaecology. Apply to the Secretary of the Faculty of Medicine.

JAMES COOPER ENDOWMENT FOR THE STUDY AND TEACHING OF INTERNAL MEDICINE. — The income from a bequest by the late James Cooper is used for fellowships or for grants to departments to provide technical assistance, equipment, and supplies for medical research.

JAMES DOUGLAS FELLOWSHIP IN PATHOLOGY. — The income from a donation of $25,000 by the late Dr. James Douglas, is devoted to co-ordinated research in the laboratories of pathology in or associated with the University.

BLANCHE HUTCHINSON RESEARCH FUND. — The income from a bequest from the late Mrs. Frank L. Hutchinson is used for fellowships or for grants to departments to provide technical assistance, equipment, and supplies for medical research.

RICHARD COLLIER FitzGERALD FUND. — The income from a bequest by the late Mr. Frederick D. FitzGerald is used for fellowships or for grants to departments to provide technical assistance, equipment and supplies for medical research, especially on the subject of cancer.

PERCY HERMANT FELLOWSHIPS IN OPHTHALMOLOGY. — These fellowships of $2,000 each have been established by Mr. Percy Hermant. Normally two are awarded each year. Candidates must be graduates in Medicine of McGill or other approved medical schools, must be commencing the study of Ophthalmology at McGill and must be planning to practise this specialty in Canada. Apply to the Chairman, Department of Ophthalmology, McGill University.

JAMES O. MEADOWS AND MARIA MEADOWS AWARDS. — A bequest of $200,000 from the late Dame Maria Cowan Meadows to establish awards for undergraduates or graduates in the Faculty of Medicine for the purpose of supporting research. Preference will be given to candidates working in the field of Cancer Research, but worthy candidates working in other areas of medical or surgical research will also be considered. Apply to the Dean of the Faculty of Medicine.

GEORGE W. MERCK MEMORIAL LOAN FUND. — Established in 1960 to provide loans up to $600 to graduates of any approved medical school who are internes or residents in one of the McGill teaching hospitals. Apply to the Director of the hospital who will submit applications to the Dean of the Faculty of Medicine.

H. W. MOLSON FELLOWSHIP IN CANCER RESEARCH. — Value not less than $1,000, renewable for not more than four years, and open to graduates of any recognized medical school. The course of training and research will be decided by the Strathcona Professor of Pathology and the Professor of Obstetrics and Gynaecology, and will ordinarily comprise one or more years of study in the Pathological Institute followed by clinical research in the Royal Victoria Hospital. Apply to the Dean of the Faculty of Medicine.

FELLOWSHIPS IN NEUROLOGY, NEUROPATHOLOGY, AND NEUROSURGERY. — A limited number of fellowships may be available in the Montreal Neurological Institute, to which inquiries should be directed.

IZAAK WALTON KILLAM SCHOLARSHIPS. — Established in 1966 by a generous bequest to the Montreal Neurological Institute by the will of the late Mrs. Dorothy Killam, for advanced study

in the fields of Neurology, Neurosurgery and the related basic disciplines. Open to all, but preference given to Canadians and scientists planning to immigrate to Canada. Value $4,000-$8,000 depending on the candidate's qualifications. Apply in writing to the Director of the Montreal Neurological Institute by March 1.

SIR EDWARD W. BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS. — A fund of $100,000 was bequeathed by the late Dr. Henry Albert Beatty, the income from which provides two scholarships, not necessarily of equal value, awarded annually to students of either sex and of any nationality. Open to (i) students registered in the McGill Faculty of Medicine as candidates for the M.D.,C.M. degree, (ii) graduates of an accredited Faculty of Medicine registered for postgraduate degrees, (iii) graduates of an accredited Faculty of Medicine registered for a postgraduate diploma in a clinical specialty, (iv) graduates of an accredited Faculty of Medicine who are employed in a year of research as part of their residency training program. For students who hold or are working towards the McGill M.D.,C.M. the award may be held at any approved institution in Canada or abroad. For other qualified students the award must be held at McGill. The holder is expected to devote his year of tenure either to research or to some form of special training excluding the normal training towards the M.D.,C.M. and excluding any of the years of residency training required in the Diploma courses. Awarded by the Faculty of Medicine but not unless suitable candidates present themselves. Apply to the Dean's Office on the forms provided for this purpose on or before February 1 of the year in which the scholarship is to commence.

JEANNETTE AND ABRAM VICTOR MEMORIAL SCHOLARSHIP. — Of the approximate value of $550, open to graduates of any approved medical school and who are principally engaged in research upon the physiology of the heart, or its diseases. The scholar may hold another award or position. Apply to the Secretary of the Faculty of Medicine by February 1.

JOSEPH SCHUBERT MEMORIAL SCHOLARSHIP. — The terms of this award of the approximate value of $450 are similar to those of the Jeannette and Abram Victor Memorial Scholarship.

SAMUEL LUPOVICH MEMORIAL SCHOLARSHIP. — Of the approximate value of $400, open to graduates of any approved medical school and who are principally engaged in research upon the physiology of the blood, or its diseases. Apply to the Secretary of the Faculty of Medicine by February 1.

JOSEPH McABBIE SCHOLARSHIP. — $1,000, established by a bequest from the late Joseph McAbbie for research on asthma and asthmatic bronchitis. Apply to the Secretary of the Faculty of Medicine by February 1.

CORINNE FAY TABAC MEMORIAL AWARD IN MEDICINE. — Established by the family and friends of the late Corinne Fay Tabac, in her memory, for the support of established investigators doing research closely allied to the study of Hodgkins Disease. Awarded annually by the Postgraduate Awards Committee of the Faculty of Medicine.

DR. MILTON C. AND NINA E. WILSON AWARD. — Established in 1970 by bequest from the late Dr. Milton C. Wilson, the annual income to be available for the support of undergraduate or postgraduate students in the Faculty of Medicine who are in need of financial assistance. Awarded by the Dean of Medicine.

HIRAM N. VINEBERG RESEARCH FUND. — The income from a bequest by the late Dr. Hiram N. Vineberg to be used for fellowships or for grants to departments to provide technical assistance, equipment and supplies for medical research.

IRMA H. BAUER RESEARCH FUND. — The income from a bequest by the late Irma H. Bauer to be used for research in the field of epilepsy.

3.1.8 OPEN TO GRADUATES IN RELIGIOUS STUDIES ONLY

SAMUEL FINLEY MEMORIAL BURSARY. — Usually $150, available to a student enrolled in the Faculty of Graduate Studies and Research who is pursuing advanced studies in religion or theology, awarded at the discretion of the Dean of Religious Studies.

3.2 FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT McGILL UNIVERSITY OR ELSEWHERE

3.2.1 OPEN TO GRADUATES IN TWO OR MORE FACULTIES

GULF OIL CANADA LIMITED GRADUATE FELLOWSHIPS. — Nine fellowships of $3,500 each, plus $1,000 for research expenses. Candidates must be Canadian citizens or landed immigrants who are graduates of institutions which are members of the Association of Universities and Colleges of Canada, and are tenable at any such university. Awarded to candidates in engineering, chemistry, physics, mathematics, computer sciences, geology, geophysics, and

any related sciences, business and management studies, and ecologically-oriented studies. Apply to the Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont. Completed applications must reach the Director before March 1.

DEPARTMENT OF AGRICULTURE AND COLONIZATION SCHOLARSHIPS. — Through the Agricultural Research Council, scholarships leading to a postgraduate degree in various disciplines in agricultural science are offered to Quebec residents. Application forms can be obtained from the Registrar, Macdonald College, or from the Secretary, Quebec Agricultural Research Council, Department of Agriculture and Colonization, Quebec, Que.

BELL CANADA CENTENNIAL FELLOWSHIPS. — Up to a total of eight graduate fellowships in the amount of $3,500 to Fellow and $1,500 to University (Fellow's tuition fees will be paid out of the $1,500) will be given annually: four of which will be new awards. Candidates must be Canadian citizens or must have held landed immigrant status for one year prior to submitting an application. Applicants must be graduates of a university or college with standards accepted by the A.U.C.C. The field of study is unrestricted, but preference will be given to subject areas relevant to the scientific, political, social or economic needs of Canada. On completion of the fellowship, three copies of a thesis or reasonably detailed account of the work done should be sent to the Director of Awards, A.U.C.C., who in turn will forward two copies to Bell Canada. Apply before March 1 to Director of Awards, A.U.C.C., 151 Slater Street, Ottawa 4, Ont.

GEORGE A. CALLBECK SCHOLARSHIP. — $3.000 offered by the Canadian National Silver Fox Breeders' Association for research and preparation of a thesis on the History of the Silver Fox Industry in Canada. Open to graduate students with a degree in Agriculture or Economics from Canadian universities. Apply to Chairmen of Departments of Agriculture or Economics. For further information apply to Mr. L. K. Lockerby, Canadian National Silver Fox Breeders Association, Summerside, P.E.I.

CENTRAL MORTGAGE AND HOUSING CORPORATION GRADUATE FELLOWSHIPS. — Fellowship stipends are $3,000 plus tuition fees for students proceeding to a master's degree and $4,000 plus tuition fees for post-master's candidates proceeding to a doctoral degree. Tenable in a broad range of fields involved in understanding and dealing with urban regional environment. Candidates must be recommended by the University and must be Canadian citizens or landed immigrants in Canada. Application forms and information are available from: Administrator, Advisory Group, Central Mortgage and Housing Corporation, Ottawa. Deadline dates: March 1 for study at Canadian universities and April 1 for study at universities outside Canada.

CHEVRON STANDARD LIMITED GRADUATE FELLOWSHIPS. — Five fellowships of $1,000 each tenable at Canadian universities for one year in the fields of Geological Sciences or Geophysics by male Canadian students. Apply to the Fellowships Office of the Faculty of Graduate Studies and Research. Completed forms should be returned to Chevron Ltd. before March 31.

COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN. — Provides opportunities for Commonwealth students to pursue advanced courses in other Commonwealth countries. Intended for men and women of high intellectual promise who may be expected to make a significant contribution to their own countries on their return from study abroad. At present, graduate scholarships are available for study in the United Kingdom, Australia, New Zealand, Hong Kong, Malaysia, Malta, India, Ceylon, Tanzania, Nigeria, Pakistan, Ghana, Jamaica and Sierra Leone, and the Canadian Government offers scholarships for other Commonwealth students to study in Canada. Awards are normally made for two academic years and cover return transportation, tuition fees, personal maintenance allowance, and a grant for incidental expenses. Deadline dates for receipt of applications vary according to each country. Full information and application forms may be obtained from the Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont.

McGILL DELTA UPSILON MEMORIAL SCHOLARSHIP. — Present value $3,000. Founded by the McGill Chapter of the Delta Upsilon Fraternity in memory of its members who gave their lives in the Boer War, the Great War of 1914-18, and the Second World War of 1939-45. Open to graduates of McGill University in all faculties and tenable for graduate study at any recognized university. Applications should be made by letter to the Secretary, University Scholarships Committee, Registrar's Office by April 1. Letter must include details of qualifications; plans for graduate study; financial need; intended future career; and the names of two professors to whom the Selection Committee members may refer for recommendations. The usefulness to the community of the proposed studies, and the likelihood that the candidate will reflect credit on the University, will be taken into consideration.

HAROLD H. HELM FELLOWSHIPS. — Tenable during 1973-74 by men who hold a Bachelor's degree from McGill and are registered in any Department of the Graduate Faculty of Princeton University. In alternate years tenable at McGill by a Princeton graduate. Non-renewable. Value $1,400 plus fees. McGill students apply in writing to the Dean of the Graduate School at Princeton; Princeton students apply similarly to the Dean of the Graduate Faculty at McGill, in each case before February 1.

HENNESSY FELLOWSHIP. — A fellowship of $3,000 to be awarded annually for a period of five years for first year graduate study in any field at any university. This award is tenable for one year only. Applicants should apply to the Fellowships Office of the Faculty of Graduate Studies and Research before February 1, giving a curriculum vitae, the names of three referees, details of the proposed study and academic transcripts.

IMPERIAL OIL GRADUATE RESEARCH FELLOWSHIPS. — Five fellowships of $3,000, renewable up to three years, offered by Imperial Oil Limited to graduates of approved Canadian universities for research leading towards a Doctor's degree at any approved university in the following fields:

Pure and Applied Natural and/or Exact Sciences, including Mathematics:
Three fellowships.

Social Sciences and Humanities:
Two fellowships.

Applications are forwarded by the University at which the undergraduate course was followed, and application forms can be obtained from the Fellowships Office, Faculty of Graduate Studies and Research. Completed applications must be submitted to the Secretary, Committee on Higher Education, Imperial Oil Limited, 111 St. Clair Avenue West, Toronto 7, Ontario, not later than February 1.

INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS. — Awards of $3,800 (plus $700 for research expenses) renewable up to three years, and open in the fields of Metallurgy, Mining, Geology, and the Chemistry and Physics of Metals. Applications are made by the professor directing the research, and should reach the Dean of the Graduate Faculty by January 1.

NATIONAL CANCER INSTITUTE RESEARCH FELLOWSHIPS. — Fellowships from $3,500 to $8,000, plus allowance for dependent children, normally tenable in Canada, are offered in the field of cancer research to men or women graduates of approved universities. Apply on official forms to the National Cancer Institute of Canada, 25 Adelaide St. E., Toronto 1, Ont., by December 15.

NATIONAL RESEARCH COUNCIL SCHOLARSHIPS. — Scholarships of the value of $4,050 are awarded by the National Research Council to highly qualified honours graduates and graduate students for study and research in the Natural Sciences (Biological & Physical), Mathematics, Engineering, Experimental Psychology and the basic sciences in Agriculture. Available for Canadian citizens and landed immigrants who have completed one year of study at a Canadian university at the time of application. Application forms available from departments and the Graduate Faculty, to be sent to the Faculty of Graduate Studies and Research. Applications must be made before December 1. These awards are normally tenable in Canada only but under special circumstances may be used in other countries. The awards are renewable for a second year and subsequent years. For further information apply to the Fellowships Office of the Faculty of Graduate Studies and Research.

NORANDA GRADUATE RESEARCH FELLOWSHIPS. — Awards of $4,000 (plus $1,000 for equipment and other expenses) renewable up to three years, and open in the fields of Mining, Mineral Engineering, Extractive Metallurgy, Chemical Engineering, Electrochemistry, Inorganic Chemistry, Physical Metallurgy, and Materials Science. Application should be made through the appropriate university department to the Director of Research and Development, Noranda Research Centre, 240 Hymus Boulevard, Pointe Claire, Quebec, not later than April 1. Recipients of Fellowships will be notified by May 1. Preference will be given to Canadian citizens.

BANK OF NOVA SCOTIA BILINGUAL EXCHANGE SCHOLARSHIPS. — Six annual one-year undergraduate and graduate awards are available, three to French-speaking candidates and three to English-speaking candidates. Undergraduate awards are for $1,500 tenable in the second to last year of a first university degree program. Graduate awards are for $3,000 and graduate students will be expected to outline their proposed programs of study. English-speaking winners may attend any Canadian French-speaking university or college and French-speaking winners may attend any Canadian English-speaking university or college provided it is a member, or federated with, or affiliated to, a member of the Association of Universities and Colleges of Canada. Apply to Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont. Completed applications must be sent to the above address to arrive not later than March 1.

PROVINCE OF QUEBEC DEPARTMENT OF NATURAL RESOURCES SCHOLARSHIPS. — Open to Canadian citizens, resident in Quebec for the five preceding years, pursuing postgraduate courses in hydraulics, hydro-electricity, hydrology or meteorology. Candidates must submit proof of admission to the institution at which they wish to study. Value $1,500. Renewable. Apply before May 1 to the Secretary, Scholarships Committee, Quebec Department of Natural Resources, Parliament Buildings, Quebec, Que.

PROVINCE OF QUEBEC, DEPARTMENT OF NATURAL RESOURCES, MINERAL INDUSTRY BURSARIES. — Open to Canadian citizens resident in Quebec during the 5 preceding years, and

following postgraduate courses in Geological Sciences, Mining, or Metallurgy. Amount awarded varies from year to year. Application forms and instructions available from Scholarships Committee, 1620, Boulevard de l'Entente, Quebec City. Deadline variable, about February 1.

PROVINCE OF QUEBEC POSTGRADUATE SCHOLARSHIPS. — Value varies from an honorary award of $100 to a maximum of $3,500, available for students pursuing graduate work in the arts, sciences, or technology, in Canada or elsewhere. Open to men and women who have resided in the Province of Quebec for at least one year. Completed new application forms must reach the Department of Education, Postgraduate Scholarships Service, Parliament Buildings, Quebec 4, Que., before December 31 and renewal applications by February 15.

SEAGRAM BUSINESS FELLOWSHIPS OF THE SAMUEL BRONFMAN FOUNDATION. — Eight Type A awards of $1,000 are given annually by this foundation to first or qualifying year students enrolled in a Master's degree program. Eligibility is limited to Canadian citizens. Applicants for first year fellowships may apply directly to: Professor Jean-Paul Sallenave, Awards Chairman, Canadian Association of Administrative Sciences, Faculty of Administration, Sherbrooke University, Sherbrooke, Quebec. Completed applications must be received before May 18.

Four Type B fellowships of $1,600 are given annually by this foundation to students in their final year of a Master's program or in any year of a Doctoral program. Eligibility is limited to Canadian citizens. Applications are submitted on behalf of candidates by the Dean of the Faculty of Management and interested students should contact him before March 1.

SOCIETY OF INDUSTRIAL ACCOUNTANTS OF CANADA BUSINESS FELLOWSHIPS. — Five fellowships of $1,200 each are available annually to students enrolled in a graduate business program at Canadian universities. Awards are to be granted to students whose program indicates an interest in Management Accounting and Accounting Research. Apply before April 1 to: Administrative Secretary, Fellowships Selection Committee, Society of Industrial Accountants of Canada, P.O. Box 176, 154 Main Street East, Hamilton, Ontario.

WALTER C. SUMNER MEMORIAL FELLOWSHIPS. — Awards of $4,000 to $5,000 are available to doctoral candidates in the fields of Chemistry, Physics, or Electronics, who are in full time attendance at Dalhousie University, University of Toronto, McGill University, University of Saskatchewan, University of British Columbia, or Queens University. May be held for up to two years. An applicant must hold a degree from a recognized Canadian university other than the university where doctoral studies and research will be carried on, must be a Canadian citizen, and must be domiciled in one of the provinces of Canada. Applications to be made to the Walter C. Sumner Foundation through the university at which doctoral studies and research will be carried on. Further details and application forms may be obtained from the Faculty of Graduate Studies and Research.

3.2.2 OPEN TO GRADUATES IN ARTS OR SCIENCE

CANADA COUNCIL SCHOLARSHIPS AND FELLOWSHIPS. — The Canada Council offers (a) fellowships of $3,500 plus travel allowance, for study leading to a Doctor's degree, in Canada or elsewhere, (b) senior fellowships of $4,500 plus travel allowance, for established scholars and teachers for study outside Canada, (c) scholarships up to $5,500 for secondary schoolteachers seeking further training, etc., (d) non-resident fellowships with a maximum value of $5,000 plus travel allowance for study in Canada. Short-term grants in aid of research are also available to postdoctoral scholars and other senior members of university staffs. All these awards are restricted to the humanities and social sciences, and also to residents in Canada or Canadians abroad. Application forms and further information may be obtained from Departments and the Graduate Faculty as well as the Secretary, The Canada Council, P.O. Box 1047, Ottawa, Ontario K1P 5V8. The deadline for receiving applications in Ottawa differs in the various categories but in most cases is December 15 and can be as early as October 1.

ALLEN OLIVER FELLOWSHIP IN ECONOMICS. — Present value about $1,000. Established by Mrs. Frank Oliver, of Edmonton, Alta., in "proud and loving memory of her son, the late Allen Oliver, M.C., B.A., Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme on November 18, 1916." Lieutenant Oliver was an honour graduate in 1915 in the Department of Economics and Political Science. Awarded to the student who stands highest in first class honours in the Departments of Economics and Political Science at the final B.A. examination, and the holder is required to pursue his studies in Economics and Political Science at McGill or elsewhere. No application is required.

DOW-HICKSON FELLOWSHIP IN THEORETICAL PHILOSOPHY. — Endowed by the late Professor J. W. A. Hickson. Minimum value $1,750, with maximum (in special cases) of $2,750. Tenable by a graduate of any approved university proceeding to a higher degree in Theoretical Philosophy (Metaphysics, Epistemology, Logic, History of Philosophy) at McGill, or by a McGill graduate pursuing such studies elsewhere. The holder may apply for a second year

of tenure. Apply to the Dean of the Graduate Faculty through the Philosophy Department before February 1.

DOW-HICKSON FELLOWSHIP IN PHYSICS. — Endowed by the late Professor J. W. A. Hickson. Minimum value $1,750, with maximum (in special cases) of $2,750. Tenable by a graduate of any approved university proceeding to a higher degree in any branch of Physics at McGill, or by a McGill graduate pursuing such studies elsewhere. The holder may apply for a second year of tenure. Apply to the Dean of the Graduate Faculty through the Physics Department before February 1.

EMILE LAMOUREUX MEMORIAL BURSARY, MONTREAL ANGLERS AND HUNTERS INC. — $300, open to graduate students in wildlife biology at Université de Montréal, Sir George Williams University, Université du Québec à Montréal, McGill University and/or Macdonald College. Application forms may be obtained from the Secretary, Montreal Anglers and Hunters Inc., 6424 St. Denis, Montreal and must be submitted by April 1.

3.2.3 OPEN TO STUDENTS IN EDUCATION ONLY

SPECIAL GRADUATE SCHOLARSHIPS. — The Department of Education, Quebec, awards competitive scholarships of $1,200 per year to students of high academic standing who are prepared to enrol in a three-year program leading to a Class I Teaching Diploma and an M.A. in education or in a subject which is taught in school. Apply to the Student Aid Service, Parliament Buildings, Quebec, P.Q.

3.2.4 OPEN TO GRADUATES IN ENGINEERING ONLY

SHELL CANADA FELLOWSHIPS IN ENGINEERING. — Maximum value $4,500. Shell Canada Limited is offering a number of fellowships for postgraduate study and research, tenable at any Canadian university, in the following fields: Chemical, Civil, Electrical, Geological, Mechanical, Metallurgical, Mining and Petroleum Engineering, and Engineering Physics. Available to Canadian citizens or landed immigrants, under 25 years of age, who have completed with high honours a first degree in engineering and have completed, or expect to complete during the current academic year, at last one year of postgraduate research in one of the specified fields and who plan to complete a doctorate in Canada. In exceptional cases, graduates of Canadian universities may be considered without having carried out a year of postgraduate study. Applications should be submitted by January 15. Application forms may be obtained from the Fellowships Office of the Graduate Faculty.

STEEL COMPANY OF CANADA, LIMITED GRADUATE RESEARCH FELLOWSHIPS IN METALLURGY. — Four fellowships of $5,000 for metallurgical research in Canadian universities are granted each year, $4,000 to the winner and $1,000 to the university attended. Candidates must be Canadian citizens or have held landed immigrants status for one year prior to submitting application, and must be graduates of a Canadian university or college which is a member of the Association of Universities and Colleges of Canada. Apply to the Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont. Completed forms must arrive at the above address before March 1.

3.2.5 OPEN TO GRADUATES IN LAW ONLY

EDWIN BOTSFORD BUSTEED SCHOLARSHIP. — Value approximately $750 and can be used to supplement funds for graduate studies already received from other sources. Bequeathed by the late Mrs. Edwin Botsford Busteed in memory of her husband, Edwin Botsford Busteed, K.C., B.A., B.C.L. Awarded by the Law Faculty to an applicant, for graduate research on some subject connected with the law of Quebec and approved by the Faculty.

3.2.6 OPEN TO GRADUATES IN MEDICINE ONLY

SIR EDWARD W. BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS. — A fund of $100,000 was bequeathed by the late Dr. Henry Albert Beatty, the income from which provides two scholarships, not necessarily of equal value, awarded annually to students of either sex and of any nationality. Open to (i) students registered in the McGill Faculty of Medicine as candidates for the M.D.,C.M. degree, (ii) graduates of an accredited Faculty of Medicine registered for postgraduate degrees, (iii) graduates of an accredited Faculty of Medicine registered for a postgraduate diploma in a clinical specialty, (iv) graduates of an accredited Faculty of Medicine who are employed in a year of research as part of their residency training program. For students who hold or are working towards the McGill M.D.,C.M. the award may be held at any approved institution in Canada or abroad. For other qualified students the award must be held at McGill. The holder is expected to devote his year of tenure either to research or to some form of special training excluding the normal training towards the M.D.,C.M. and excluding any of the years of residency training required in the Diploma courses. Awarded by the Faculty of Medicine but not unless suitable candidates present themselves. Apply to the Dean's Office on the forms provided for this purpose on or before February 1 of the year in which the scholarship is to commence.

G. RUTHERFURD CAVERHILL FELLOWSHIP IN MEDICINE. — A fellowship of variable value to assist demobilized medical officers to obtain postgraduate training in medicine or research experience. Preference given to McGill graduates. Inquire of the Dean of the Faculty of Medicine.

JOHN McCRAE FELLOWSHIP. — Approximate value of $1,800, for: (1) Graduates of any approved medical school who are candidates for the Diploma in Surgery, Urology, Otolaryngology, Radiology, etc., or (2) McGill graduates in Medicine, or (3) graduates of any approved medical school proceeding towards a McGill M.Sc. or Ph.D. in fields related to Surgery, etc. In all cases the holder is expected to spend twelve months in full-time laboratory or clinical research at McGill or an approved institution elsewhere. Apply to the Dean of the Faculty of Medicine not later than April 1, with a letter of recommendation from a member of the teaching staff, transcript of the undergraduate record, and description of the proposed research naming the institution selected and its director. Tenure should commence not earlier than June nor later than October; a final report on the work done is required. In all cases preference is given to candidates aiming at a course in Surgery and to researches likely to contribute to Surgery and its branches.

OSLER MEMORIAL SCHOLARSHIP. — Awarded by the Canadian Medical Association as funds permit to a candidate nominated by the Faculty of Medicine "in order that such candidate may pursue studies to advance the knowledge of medicine and to improve the teaching of clinical medicine." Candidates must be graduates of not more than ten years' standing and, other things being equal, preference is given to McGill graduates.

GORDON PHILLIPS FUND FOR RESEARCH IN CARDIOVASCULAR DISEASES. — This fund provides a scholarship of not less than $1,600, open to graduates in Medicine of any approved medical school regardless of sex, race or religion. Awards to McGill graduates in Medicine may be held at McGill or at any other approved institution. Awards made to other graduates in Medicine must be held at McGill University. Apply to the Secretary of the Faculty of Medicine by February 1.

3.3. FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT OTHER UNIVERSITIES ONLY

See also Section 3.2.

3.3.1 OPEN TO GRADUATES IN SEVERAL FACULTIES

CULTURAL AGREEMENT FRANCE-CANADA GRADUATE SCHOLARSHIPS. — These scholarships are offered by the Government of France and are unrestricted as to field of study and are tenable in France. Value, 500 French francs per month (possibly up to 750 French francs per month for Ph.D. candidates), plus return economy air fare and refund for medical, dental, hospital and pharmaceutical expenses and various indemnities towards lodging, relevant travel expenses, thesis typing expenses, free tuition and the benefit of students privileges (university restaurants, residences, cultural and social activities). No funds are available for dependents. Open to Canadian citizens or to those who have held landed immigrant status for at least one year prior to submitting application. A good knowledge of French is essential. For further information apply to: Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa 4. Closing date for receipt of applications is December 31.

FRANCE QUEBEC EXCHANGE PROGRAM.—

Scholarships offered to Quebec Graduate Students:

The French Government offers scholarships to Quebec graduate students who wish to study in France. Preference is given to students specializing in the following areas: pure and applied science, economics, town planning, and the teaching of French, although candidates from other disciplines can apply as well. The amount of the scholarship is 1,500F (approximately $300) a month and is offered for a nine-month period. The scholarship is renewable upon request. Travelling expenses are also covered.

Information and application forms are available at the French Consulate in Montreal. Application forms must be returned to the French Consulate by January 15, 1974. (Consulat général de France, Place Bonaventure, Etage E, 2 rue Elysée; Tel.: 878-4381.)

Placement of Graduate Students in French Research Centres:

The purpose of this project is to send Quebec graduate students to France for a year as research assistants in order to familiarize them with French laboratories and research centres. Students should be registered in a Quebec university and pursuing a Ph.D. program, *preferably* in one of the following areas: pure sciences, applied sciences, management and administra-

tion, and economics. Candidates with a strong case from other areas are also invited to submit an application.

Application forms and further information are available from the Fellowships Office of the Faculty of Graduate Studies and Research. The deadline for submitting an application is January 31, 1974.

ROTARY FOUNDATION FELLOWSHIP. — Approximately $4,000. The Rotary Foundation of Montreal, District 704, offers a Graduate Fellowship for study abroad each year. Requirements for candidates (male or female) are: bachelor's degree or equivalent, age 20-28 inclusive, may be married. The award covers round trip transportation, room and board, tuition and miscellaneous related expenses for one academic year. Preference is given to applicants who wish to study in a country where the native language is different from their own. For further information and application forms, write to the Rotary Club of Montreal, Queen Elizabeth Hotel, Suite 373, Montreal. Date limit for receiving applications is March 1.

ROYAL COMMISSION FOR THE EXHIBITION OF 1851 OVERSEAS SCIENCE RESEARCH SCHOLARSHIPS. — Value £900 per annum, plus £100 a year to cover University fees. Tenable for two or exceptionally, three years, to enable students to devote themselves to research work under conditions most likely to equip them for practical service in the scientific life of the Commonwealth. The holder must devote himself to a field of research approved by the Commissioners. Three scholarships, tenable at any institution approved by the Commission (usually universities in the United Kingdom), are allotted to Canada each year, the scholars being chosen by the Commission from nominees of certain universities, including McGill. Candidates will in most cases have completed from one to three years of postgraduate study and must present evidence of accomplishment in research, either published papers or typewritten reports or theses. Candidates should apply, not later than February 15, through the Chairman of their Department. Further details may be obtained from the Fellowships Office, Faculty of Graduate Studies and Research.

POSTGRADUATE SCHOLARSHIPS GRANTED BY THE I.O.D.E. — The I.O.D.E. has established First and Second War Memorial Scholarships in order to perpetuate the memory of the men and women who gave their lives in World Wars I and II. Four scholarships are offered annually to enable students to carry on studies in History, Economics, Constitutional Government or any subject vital to the interests of the Commonwealth and six scholarships are offered for studies in the Humanities. These ten awards are tenable in any university in Great Britain or in any part of the Commonwealth and are valued at $5,000 each. Scholarships tenable in a university in Canada are valued at $3,000 each. Candidates must be Canadian citizens holding a degree from a recognized university or degree-granting college in Canada and *must have done, or be doing postgraduate work* and be or have been registered in a Graduate Shcool.

For full details apply to the Fellowships Office, Faculty of Graduate Studies and Research. Applications must be submitted by November 15.

RHODES SCHOLARSHIPS. — Approximately £1,550, represented by a personal allowance of approximately £80 per month and direct payment of University and College fees and dues, for two scholars chosen from the Province of Quebec, tenable for two years at Oxford University. A third year may be granted under certain conditions. Candidates must be British subjects with at least five years domicile in Canada and be between the ages of nineteen and twenty-five. Male students in any faculty may apply. Applications must reach the Secretary of the Provincial Selection Committee before October 25. For further details of tenure, eligibility, and qualifications, and application forms apply to the Fellowships Office, Faculty of Graduate Studies and Research, or the Provincial Secretary, Mr. L. Yves Fortier, 1 Place Ville Marie, Suit 700, Montreal, Que.

COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN. (See 2.5.)

SHELL POSTGRADUATE SCHOLARSHIPS. — Scholarships of £1,450 per annum are offered for two years' study at a university in the United Kingdom in Chemistry, Physics, Geology, Geophysics or Engineering, leading to a higher degree. Applicants should be Canadian citizens or landed immigrants and under 25 years of age and have completed at least one year of postgraduate study. The closing date for applications is January 15. Application forms from the Fellowships Office of the Graduate Faculty.

GLASGOW EXCHANGE SCHOLARSHIP. — Established to enable a McGill graduate to spend two sessions of postgraduate work at the University of Glasgow and for a graduate of the University of Glasgow to spend two sessions of postgraduate work at McGill. The awards are available for two years and awarded only every second year. Open to degree and non-degree candidates. Glasgow will waive fees for the student from McGill and provide accommodation in a hall of residence plus a small cash award. The value of the award at McGill for the student from Glasgow is $3,000 per annum. An award will be made in April 1975 to a McGill student for the period 1975-77. Application forms for the exchange can be obtained from the Fellowships Office of the Faculty of Graduate Studies and Research.

GERMAN ACADEMIC EXCHANGE SERVICE FELLOWSHIPS. — Sixteen fellowships valued at approximately $137 to $220 per month and return travel expenses, as well as free tuition, course fees and university examination fees. Tenable at universities, technical universities, scientific institutions, and academies of art or music in the Federal Republic of West Germany for study in any field except pharmacy, chemical engineering and specialized fields of agricultural research. Candidates must be Canadian citizens, must be university graduates, must have a good knowledge of German, and must not be more than 32 years of age. Applications must be submitted by December 31. For further information, write to: Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa 4.

SWISS UNIVERSITY SCHOLARSHIPS. — The Swiss Government offers six scholarships a year for study in Switzerland in any field except Music and Fine Arts and will pay approximately $150 to $175 per month, plus return fare at conclusion of scholarship plus tuition fees, plus health and accident insurance, and generally, a specific amount of study material. Candidates must be Canadian citizens and must have graduated from a recognized university. A good knowledge of either French or German is required. Awards are for 12 months with possibility of renewal. Applications must be submitted by December 31. For further information, write to: Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa 4.

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S PROFESSIONAL FELLOWSHIP. — Value $2,500, open to any woman holding a degree from a Canadian University, whose domicile is in Canada (a) who wishes to spend a year at an accredited Library School, School of Social Work, College of Education or similar professional school; or (b) who wishes, after some years or experience in a chosen field or after a lapse of time away from formal study, to embark on a program leading to an advanced degree. One of two Professional Fellowships are awarded. Apply to the Chairman of the Fellowships Committee, c/o Canadian Federation of University Women, Mount Allison University, Box 69, Sackville, N.B. Applications and testimonials must be received before February 1.

CANADIAN FEDERATION OF UNIVERSITY WOMEN — MARGARET McWILLIAMS TRAVELLING FELLOWSHIP. — Value $3,500, open to any woman scholar who holds a Master's Degree or equivalent from a Canadian University, who is already well advanced on her Doctoral Program, and who wishes to continue her work outside of Canada. The candidate must be a resident of Canada but she may be studying elsewhere at the time of application. Apply to the Chairman of the Fellowships Committee, c/o Canadian Federation of University Women, Mount Allison University, Box 69, Sackville, N.B. Applications and testimonials must be received before February 1.

FURTHER AWARDS MADE BY UNIVERSITY WOMEN'S ORGANIZATIONS. — For full information apply to the Chairman of the Fellowships Committee, c/o Canadian Federation of University Women, Mount Allison University, Box 69, Sackville, N.B.

FRANK KNOX FELLOWSHIPS. — Awards of $2,400 plus tuition, tenable at Harvard University in Arts and Sciences, Engineering, Business Administration, Dental Medicine, Design, Divinity, Education, Law, Medicine, Public Administration, and Public Health, by Canadian students, not resident in the U.S.A., graduated or about to graduate from a Canadian university or college at which they have spent at least two of the last four years. Information and application forms are available from the Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont., to whom completed applications must be sent before December 1.

SHASTRI INSTITUTE FELLOWSHIPS. — Two types of fellowships *for research in India* are offered in the humanities and social sciences: (1) Senior Fellowships for established scholars normally resident in Canada (normally for a 12-month period; shorter term grants under this category will also be considered). Value, rupee equivalent of $7,000. (2) Junior Fellowships for qualified graduate students to conduct research as partial fulfilment of the requirements for a doctoral degree in a Canadian institution — value, rupee equivalent of $5,500. Deadline for applications for Junior and Senior Fellowships is November 1. Apply to: The Executive Director, The Shastri Indo-Canadian Institute, 1005 Sherbrooke Street West, McGill University, Montreal 112.

3.3.2 OPEN TO GRADUATES IN ARCHITECTURE

A. F. DUNLOP SCHOLARSHIPS. — Two travelling scholarships, value $1,500 each bequeathed by the late Mrs. Catherine A. Dunlop for students graduating in Architecture. Apply, stating proposed study, localities to be visited and date of departure, to the Director of the School of Architecture before March 31. Selection is made by a Committee of Staff of the School of Architecture.

HUGH McLENNAN MEMORIAL SCHOLARSHIP. — Established by the Hon. John Stewart McLennan, Dr. Francis McLennan and Miss Isabella McLennan in memory of Hugh McLennan, son of the Hon. John Stewart McLennan, killed at the Battle of Ypres in 1915. Value $2,000, awarded to the student graduating in Architecture who has shown the greatest capacity in the solution of

problems and who gives promise of creative ability. Selection is made by a Committee of Staff of the School of Architecture.

3.3.3 OPEN TO GRADUATES IN ARTS OR SCIENCE

MOYSE TRAVELLING SCHOLARSHIPS. — Founded by the late Right Honourable Lord Atholstan, to commemorate the "splendid services of Dr. Charles E. Moyse, for forty-two years Professor of English, during sixteen of which he was Dean of the Faculty of Arts and Vice-Principal of the University." Two scholarships, normally of $2,000 each tenable for one year. One scholarship to be awarded by the Faculty of Arts for distinction in literary subjects and the other by the Faculty of Science for distinction in scientific subjects.

In the absence of applicants of sufficient merit in either of the faculties, applicants from final year students in, or graduates of, other faculties of the University may be considered.

If there is no winner in one of these faculties, both scholarships may be awarded to applicants in the other faculty. Holders must devote the year of tenure to advanced study, preferably in a British or European university, but not to the exclusion of other institutions approved by the Faculty of Arts or of Science. Applications, whether from graduates or from students in the final year of the undergraduate course, should reach the Dean of the Faculty of Arts or of Science not later than April 1. Applications should be accompanied by: (1) an official transcript of the applicant's academic record to date; (2) the names of two referees who are familiar with the applicant's work ; (3) a detailed and comprehensive statement of the applicant's proposed course of study; the institution or centre at which he, or she, proposes to study; (4) a statement of the applicant's age and nationality.

Awards will be made after the results of final examinations in the final year of the undergraduate course have been determined.

GUY DRUMMOND SCHOLARSHIP IN POLITICAL SCIENCE AND ECONOMICS. — Open to men only, originally endowed by the late Guy M. Drummond, awarded to a graduating student in the Faculty of Arts nominated jointly by the Departments of Economics, Political Science and the Department of French Language and Literature, taking into account the student's academic record and the likelihood that he will make a contribution of value to Canadian life. The nominee must be taking the honours course in Political Science or joint honours in Economics and Political Science. The award is made by the University Scholarships Committee and cannot be applied for by the candidate. The value is $5,700 plus tuition fees at McGill and such tuition fees in Paris as may be approved by the Faculty of Graduate Studies and Research. $3,500 of this covers a year of study in Paris plus approved tuition fees in Paris and registration fees at McGill, and the remaining $2,200 plus tuition fees a further year at McGill studying for the M.A. degree. In Paris, the holder studies at the Institut d'Etudes Politiques unless he wishes to specialize in Economics rather than Political Science and is permitted by McGill to study at the Sorbonne or at the Institut d'Economie Appliquée.

MACKENZIE KING TRAVELLING SCHOLARSHIPS. — Four or five scholarships of not less than $2,500 each, offered to graduates of any Canadian university who propose to engage, either in the U.S.A. or the United Kingdom, in postgraduate studies in International or Industrial Relations (including international or industrial aspects of Law, History, Politics, Economics). Applicants should be persons of unusual worth and promise. Awards are based on their academic achievement, personal qualities and demonstrated aptitudes, as well as their proposed programs of study. Applications must be submitted by March 1. Further information may be obtained from the Fellowships Office, Faculty of Graduate Studies and Research.

3.3.4 OPEN TO GRADUATES IN LAW

MACDONALD TRAVELLING SCHOLARSHIP. — Value $2,500. Founded by a bequest of the late Sir William Macdonald "for the purpose of enabling English-speaking Law students to take a course of studies in France," the testator "deeming it of great importance that the English-speaking members of the legal profession should be proficient in the French language." The holder is required to pursue a year's study in the Law Faculty of a French university approved by the McGill Faculty of Law. Awarded by the Faculty to a student of the graduating class, proceeding to the Bar, with first or second class honours in the final examination and who would be unable without financial help to spend a year in France. The Faculty interprets the bequest as intending that the scholarship be awarded only to students preparing for practice as advocates in the Province of Quebec. At present the scholarship must be used in the year in which it is awarded.

THOMAS SHEARER STEWART TRAVELLING FELLOWSHIP. — Value $2,500, established in memory of the late Thomas Shearer Stewart, B.A. 1905, B.C.L. 1908, by his widow and family. Awarded annually by the Dean to a recent graduate of the Faculty of Law for studies in Law at a university in Europe or the United Kingdom approved by the Dean. Preference is given to Canadian ctitizens intending to reside in Canada. Apply to the Dean of the Faculty of Law.

3.3.5 FELLOWSHIPS OFFERED BY OTHER UNIVERSITIES

Graduates of McGill University who desire to undertake graduate study elsewhere should note that many universities offer fellowships and scholarships for which they may be eligible. Particulars of many of these may be obtained in the Fellowships Office of the Graduate Faculty. In many cases applications should be prepared not later than the January preceding the session for which the award is made.

3.4 POSTDOCTORAL FELLOWSHIPS

FRANCE-QUEBEC EXCHANGE PROGRAM POSTDOCTORAL FELLOWSHIPS. — Scholarships (2,500 to 3,000F a month) are also offered to Quebec postdoctoral students who wish to pursue their studies and research in France for a period of three to twelve months. Candidates from all disciplines are invited to apply, but preference is given to candidates in the fields of pure and applied science. Travelling expenses to and from France as well as expenses incurred while travelling in France for the purpose of research are assumed by the Quebec Government. Applications are considered four times a year: March 1, June 1, September 1 and December 1. Application forms can be obtained from the Fellowships Office of the Faculty of Graduate Studies and Research.

HAROLD HIBBERT MEMORIAL FELLOWSHIP. — Approximately $6,500 plus travel assistance, tax free, open to candidates who hold a Ph.D. in Chemistry or its equivalent from an approved university. Tenable for one calendar year in the Department of Chemistry at McGill, where the holder must devote his full time to research. Not renewable. Apply in writing to the Chairman of the Department of Chemistry by February 1.

C. D. HOWE MEMORIAL FELLOWSHIP. — Open to Canadian citizens or those normally resident in Canada. Tenable anywhere. Value $5,000 for a single man or $7,000 for a married man, plus travel expenses if applicable. Restricted to persons whose proposed program of research is related to the political, administrative, economic, social or intellectual history of Canada since 1930, and is in some way relevant to an understanding of the public career of the Rt. Honourable C. D. Howe. Apply to Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont. Completed application forms must reach the Director before November 30.

OTTO MAASS POSTDOCTORAL FELLOWSHIP. — Approximately $6,500 plus travel assistance, tax free, open to candidates who hold a Ph.D. degree in chemistry or physics or equivalent from an approved university. Tenable for one calendar year and renewable for a second in the Physical Chemistry Division of the Pulp and Paper Research Institute of Canada and the Department of Chemistry, where the holder must devote full time to research. Apply to the Chairman, Education Committee, Pulp and Paper Research Institute of Canada.

NATIONAL RESEARCH COUNCIL POSTDOCTORAL OVERSEAS FELLOWSHIPS. — Value $7,400 (single or married with no children) and $8,600 (married with a child or children) for twelve months, available to applicants who have recently completed or expect to complete the requirements for a Doctorate in Science. Open to Canadian citizens normally resident in Canada. Completed applications must reach the Council by January 15.

NUFFIELD FOUNDATION TRAVEL GRANTS. — Awarded in the Natural Sciences, Medical Sciences, Humanities and Social Sciences. Preference will be given to Canadian citizens, although applicants who have resided in Canada a minimum of four years will also be considered. Candidates must be over 35 years of age, hold a doctor's degree and have had subsequent teaching experience. Return economy air fare for grantee and for wife provided she accompanies him for not less than two months, plus £75 per month to assist with living expenses while in United Kingdom (£100 per month if wife accompanies husband). Application forms, obtained from the Director of Awards, Association of Universities and Colleges of Canada, 151 Slater St., Ottawa 4, Ont. should be submitted by January 1 at latest.

3.5 FELLOWSHIPS AND SCHOLARSHIPS OPEN TO GRADUATES OF OTHER INSTITUTIONS FOR STUDY AT McGILL UNIVERSITY

A number of the awards listed in the preceding pages may be held by graduates of other institutions while pursuing graduate study at McGill University; these are listed below.

3.5.1 VARIOUS SUBJECTS

ASSOCIATION OF UNIVERSITIES AND COLLEGES OF CANADA SCHOLARSHIPS.
BANK OF NOVA SCOTIA BILINGUAL EXCHANGE SCHOLARSHIPS.
BELL CANADA CENTENNIAL FELLOWSHIPS.
W. M. BIRKS AWARDS (Religious Studies).
MAX BINZ BURSARIES (Foreign students).
CANADA COUNCIL DOCTORAL FELLOWSHIPS (Social Sciences, Humanities, Mathematics and Music).
CANADIAN FEDERATION OF UNIVERSITY WOMEN FELLOWSHIPS.
CANADIAN INTERNATIONAL DEVELOPMENT AGENCY SCHOLARSHIP.
CENTRAL MORTGAGE AND HOUSING CORPORATION FELLOWSHIPS (Urban studies).
COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN.
DOW-HICKSON FELLOWSHIP IN THEORETICAL PHILOSOPHY.
SAMUEL FINLEY MEMORIAL BURSARY (Religious Studies).
FRANCE-CANADA EXCHANGE SCHOLARSHIPS.
FRANCE-QUEBEC EXCHANGE SCHOLARSHIPS.
GLASGOW EXCHANGE SCHOLARSHIP.
GRADUATE FACULTY SUMMER RESEARCH FELLOWSHIPS (Humanities and Social Sciences).
GULF OIL CANADA FELLOWSHIPS (Physical Sciences and Ecological Studies).
HAROLD H. HELM FELLOWSHIP (Princeton Exchange).
HENNESSY FELLOWSHIP.
HEWITT MEMORIAL BURSARY (Humanities and Social Sciences).
C. D. HOWE MEMORIAL POSTDOCTORAL FELLOWSHIP.
IMPERIAL OIL RESEARCH FELLOWSHIPS (Sciences, Humanities and Social Sciences).
I.O.D.E. POSTGRADUATE SCHOLARSHIPS.
INTERNATIONAL BUSINESS MACHINES FELLOWSHIPS (Computer Science).
MARY KEENAN SCHOLARSHIP (English).
SAMUEL LAPITSKY SCHOLARSHIP (Anthropology and Sociology).
McCONNELL MEMORIAL FELLOWSHIPS.
McGILL DELTA UPSILON MEMORIAL SCHOLARSHIP.
NATIONAL RESEARCH COUNCIL SCHOLARSHIPS.
ISABELLA C. McLENNAN FELLOWSHIP (Women).
PROVINCE OF QUEBEC POSTGRADUATE SCHOLARSHIPS.
ROTARY FOUNDATION FELLOWSHIPS.
SOLVAY FELLOWSHIP.
STEINBERG GRADUATE FELLOWSHIPS.
DAVID STEWART MEMORIAL FELLOWSHIPS (Physical and Biological Sciences).
ARTHUR C. TAGGE FELLOWSHIP (Humanities and Social Sciences).
IRWIN ORRIN VINCENT BURSARY (Classics).

3.5.2 AGRICULTURE

GEORGE A. CALLBECK SCHOLARSHIP.
DEPARTMENT OF AGRICULTURE AND COLONIZATION SCHOLARSHIPS.
WALTER M. STEWART POSTGRADUATE SCHOLARSHIP.
SIR VINCENT MEREDITH FELLOWSHIP.

3.5.3 BIOLOGY

PHILIP CARPENTER FELLOWSHIP.
EMILE LAMOUREUX MEMORIAL BURSARY.
ARTHUR WILLEY MEMORIAL BURSARY.

3.5.4 CHEMISTRY

KIMBERLEY CLARK FELLOWSHIP.
D. S. AND R. H. GOTTESMAN SCHOLARSHIP.
HAROLD HIBBERT MEMORIAL FELLOWSHIP (Postdoctoral).
T. STERRY HUNT SCHOLARSHIP.
INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS.
ALEXANDER McFEE FELLOWSHIP.
COLL McFEE MEMORIAL SCHOLARSHIP.
FRANK L. MITCHELL FELLOWSHIP.
RICHARD T. MOHAN SCHOLARSHIP.
NORANDA RESEARCH FELLOWSHIPS.
OTTO MAASS MEMORIAL FELLOWSHIP.
OTTO MAASS POSTDOCTORAL FELLOWSHIP.
PULP AND PAPER RESEARCH STUDENTSHIP.

CLIFFORD B. PURVES FELLOWSHIP.
WALTER C. SUMNER MEMORIAL FELLOWSHIPS.
XEROX FELLOWSHIP.

3.5.5 ECONOMICS AND POLITICAL SCIENCE

BRONFMAN FELLOWSHIPS (Economics).
GEORGE A. CALLBECK SCHOLARSHIPS (Economics).
GUY DRUMMOND SCHOLARSHIP.
ALEXANDER MacKENZIE FELLOWSHIP (Political Science).
ALLEN OLIVER FELLOWSHIP (Economics).

3.5.6 EDUCATION

CANADA COUNCIL DOCTORAL FELLOWSHIPS.
COLL McFEE MEMORIAL SCHOLARSHIP (Chemistry).
IRWIN ORRIN VINCENT BURSARY.

3.5.7 ENGINEERING

ALCAN FELLOWSHIP (Metallurgy).
MAJOR JAMES H. BRACE SCHOLARSHIP.
CHEVRON STANDARD LTD. FELLOWSHIPS (Mining).
SIR WILLIAM DAWSON FELLOWSHIP (Metallurgy).
JAMES DOUGLAS FELLOWSHIP (Mining).
D. S. and R. H. GOTTESMAN SCHOLARSHIP.
GULF OIL CANADA FELLOWSHIPS.
B. J. HARRINGTON BURSARY (Mining)
WILLIAM HENRY HOWARD SCHOLARSHIPS (Metallurgy).
INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS (Mining and Metallurgy)
IRON ORE COMPANY OF CANADA SCHOLARSHIP (Mining).
MIRON FELLOWSHIP (Civil).
FRANK L. MITCHELL FELLOWSHIP (Chemical and Mechanical).
NORANDA RESEARCH FELLOWSHIPS (Chemical, Metallurgical and Mining).
OTTO MAASS MEMORIAL FELLOWSHIPS (Chemical and Mechanical).
JOHN BONSALL PORTER SCHOLARSHIP (Civil, Mechanical and Electrical).
PULP AND PAPER RESEARCH INSTITUTE STUDENTSHIPS (Chemical and Mechanical).
CLIFFORD B. PURVES FELLOWSHIP (Chemical and Mechanical).
QUEBEC IRON AND TITANIUM CORP. FELLOWSHIP (Metallurgy).
PROVINCE OF QUEBEC, DEPARTMENT OF NATURAL RESOURCES BURSARIES (Mining and Metallurgy).
SHELL CANADA FELLOWSHIPS.
STEEL CO. OF CANADA FELLOWSHIPS (Metallurgy).
WALTER C. SUMNER MEMORIAL FELLOWSHIPS (Electrical).
HORACE G. YOUNG FELLOWSHIP (Mining and Metallurgy).

3.5.8 GEOLOGICAL SCIENCES

CHEVRON STANDARD LTD. FELLOWSHIPS.
GULF OIL CANADA FELLOWSHIPS.
INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS.
LeROY MEMORIAL FELLOWSHIP.
J. B. LYNCH FELLOWSHIP.
PROVINCE OF QUEBEC, DEPARTMENT OF NATURAL RESOURCES BURSARIES.
CARL REINHARDT SCHOLARSHIP.
MAX BINZ BURSARY FOR FOREIGN STUDENTS.
WILLIAM HENRY HOWARD SCHOLARSHIPS.

3.5.9 LAW

EDWIN BOTSFORD BUSTEED SCHOLARSHIP.
CANADA COUNCIL DOCTORAL FELLOWSHIPS.
INSTITUTE OF AIR AND SPACE LAW SCHOLARSHIPS.

3.5.10 LIBRARY SCIENCE

ETHELWYN M. CROSSLEY SCHOLARSHIPS.
SYRA DEENA TARSHIS FLEISHMAN BURSARY.
ELIZABETH G. HALL SCHOLARSHIPS.
DR. G. R. LOMER SCHOLARSHIPS.

3.5.11 MANAGEMENT

BELL CANADA CENTENNIAL FELLOWSHIPS.
GULF OIL CANADA FELLOWSHIPS.
H. E. HERSCHORN SCHOLARSHIP.
McGILL ASSOCIATES FELLOWSHIPS.
SEAGRAM BUSINESS FELLOWSHIPS.
SOCIETY OF INDUSTRIAL ACCOUNTANTS BUSINESS FELLOWHIPS.
XEROX OF CANADA MANAGEMENT FELLOWSHIP.

3.5.12 MEDICINE AND MEDICAL SCIENCES

IRMA H. BAUER RESEARCH FUND.
SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS.
A. A. BROWNE MEMORIAL FUND.
G. RUTHERFURD CAVERHILL FELLOWSHIP.
J. P. COLLIP FELLOWSHIP.
JAMES COOPER ENDOWMENT.
JAMES DOUGLAS FELLOWSHIP.
RICHARD COLLIER FITZGERALD FUND.
PERCY HERMANT FELLOWSHIPS.
BLANCHE HUTCHINSON RESEARCH FUND.
IZAAK WALTON KILLAM SCHOLARSHIPS.
SAMUEL LUPOVICH MEMORIAL SCHOLARSHIP.
JOSEPH McABBIE SCHOLARSHIP.
ALEXANDER McFEE FELLOWSHIP.
JOHN McRAE FELLOWSHIP.
JAMES O. MEADOWS AND MARIA MEADOWS AWARDS.
MEDICAL RESEARCH COUNCIL STUDENTSHIPS AND FELLOWSHIPS.
GEORGE W. MERCK MEMORIAL LOAN FUND.
H. W. MOLSON FELLOWSHIP.
MONTREAL NEUROLOGICAL INSTITUTE FELLOWSHIPS.
NATIONAL CANCER INSTITUTE RESEARCH FELLOWSHIPS.
OSLER MEMORIAL SCHOLARSHIP.
GORDON PHILLIPS FUND.
JOSEPH SCHUBERT MEMORIAL SCHOLARSHIP.
JEANNETTE AND ABRAM VICTOR MEMORIAL SCHOLARSHIP.
HIRAM N. VINEBERG RESEARCH FUND.
HARRISON WATSON SCHOLARSHIP.
MILTON C. AND NINA A. WILSON AWARD.

3.5.13 NURSING

ALUMNAE ASSOCIATION SCHOLARSHIP.
ALUMNAE ASSOCIATION, R.V.H. SCHOOL OF NURSING BURSARY.
ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC BURSARIES.
PROVINCE OF QUEBEC BURSARIES.
MONTREAL GENERAL HOSPITAL.
ROYAL VICTORIA HOSPITAL NURSING SCHOLARSHIPS.
ST. JOHN AMBULANCE ASSOCIATION OF CANADA BURSARIES.

3.5.14 PHYSICS

DOW-HICKSON FELLOWSHIP.
INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS.
ALEXANDER McFEE FELLOWSHIP.
CARL REINHARDT SCHOLARSHIP.
WALTER C. SUMNER MEMORIAL FELLOWSHIPS.

Note: From time to time scholarships, fellowships, or research grants are made available by industrial corporations to encourage research by graduate students upon specific problems suitable for M.Sc., M.Eng., or Ph.D. theses and for publication, but also of commercial significance. As such awards may be offered for only one or two sessions, it is not possible to have them listed in this *Announcement;* the Departments concerned should be consulted.

3.5.15 PRIZES AND AWARDS

D. W. AMBRIDGE AWARD. An award to the graduand receiving the degrees of Ph.D. in the Physical Sciences or Engineering Departments who is judged by the Executive Committee of the Graduate Faculty to be most deserving of the award.

PRIZE OF THE AMBASSADOR OF YUGOSLAVIA IN CANADA. — A book prize for the best student in the language, literature or civilization of one of the peoples of Yugoslavia (principally Serbo-Croatian). Open to undergraduate or graduate students and awarded on the recommendation of the Department of Russian and Slavic Studies.

W. M. BIRKS AWARDS. — *M.A. Prize* $100 to a candidate who does distinguished work in the M.A. program, awarded at the discretion of the Faculty of Religious Studies.

S.T.M Prize — $100 to a candidate who obtains first-class standing, awarded at the discretion of the Faculty.

NEIL STEWART PRIZE. — $150 to a student or students studying biblical Hebrew and duly enrolled in the Faculty of Religious Studies for a degree program.

3.5.16 LOAN FUNDS

GRADUATE STUDENTS' LOAN FUND. — Established in 1951 by the Board of Governors for students in the Faculty of Graduate Studies and Research.*

FACULTY OF MANAGEMENT STUDENT LOAN FUND. — A student loan fund has been established and is administered by the Student Aid Office. For further information, apply to: Mr. J. S. Kennedy, Student Aid Office, Administration Building, McGill University.

MARGARET BIRKS MEMORIAL LOAN FUND. — Established in memory of the late Mrs. Margaret Birks, this fund is available to graduate students, preferably in the Department of Psychology. Where loans appear justified, but repayment will not be practical, bursaries will be granted.*

**Apply to Student Aid Office.*

4 SCHOLARSHIPS, BURSARIES, PRIZES AND LOAN FUNDS IN VARIOUS SCHOOLS OF THE UNIVERSITY

4.1 OPEN TO STUDENTS IN THE GRADUATE SCHOOL OF LIBRARY SCIENCE

Apply to the Director of the School for the following Scholarships before March 31.

DR. G. R. LOMER SCHOLARSHIPS. — Two scholarships of $640 each.

ETHELWYN M. CROSSLEY SCHOLARSHIPS. — Value $100, founded in honour of a former student of the Library School. Women students are given preference.

ELIZABETH G. HALL SCHOLARSHIPS. — Value $300, founded in memory of a former member of the McGill University Library staff.

SYRA DEENA TARSHIS FLEISHMAN BURSARY. — $200 established by the family of the late Syra Deena Tarshis Fleishman through the National Council of Jewish Women. Awarded by the Director of the Graduate School of Library Science and the Student Aid Office, subject to the approval of the Student Aid Committee of the National Council of Jewish Women, to a needy and deserving student in the Graduate School of Library Science irrespective of race or creed.

Awards are made, after due investigation and recommendation, to deserving students who require financial assistance to take the course.

DR. VIRGINIA MURRAY PRIZE. — Awarded to the student in the First year of the Master of Library Science course who obtains the highest grade in the Organization of Materials course.

4.2 OPEN TO STUDENTS IN THE SCHOOL OF NURSING

ALUMNAE ASSOCIATION OF THE SCHOOL OF NURSING SCHOLARSHIP. — In memory of Dr. Marion Lindeburgh, the Alumnae Association has established a scholarship of $700, open to graduate, registered nurses who wish to study at the School of Nursing, and who meet the entrance requirements. Scholarships are also available for students in B.Sc.(N) and M.Sc.(N) programs. Applications should be submitted by June 1 to the Chairman of the Scholarship Committee, Alumnae Association, 3506 University St., Montreal.

ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC BURSARIES. — A limited number of bursaries are awarded each year for study leading to the Master's degree. The amount of bursary is $3000. Applications should be submitted by May 15 to The Association of Nurses of the Province of Quebec, 4200 Dorchester Blvd. West, Montreal 215, Quebec.

MONTREAL GENERAL HOSPITAL. — The Montreal General Hospital has a limited number of bursaries available for nurses studying in the Master's program. For further information apply to the Director of Nursing, Montreal General Hospital, 1650 Cedar Avenue, Montreal 109, Quebec.

ST. JOHN AMBULANCE ASSOCIATION OF CANADA BURSARIES. — One or more bursaries of $1,000 from the Margaret MacLaren Memorial Fund for study at the Master's level are available to experienced registered nurses who have proven their ability and are preparing themselves for leadership positions. All factors being equal, special consideration will be given to those with St. John affiliation. Applications are to be forwarded not later than May 16 to the Chairman of Bursary Funds, St. John Ambulance Association, 321 Chapel Street, Ottawa 2.

ROYAL VICTORIA HOSPITAL NURSING SCHOLARSHIPS:

(a) The Mabel F. Hersey Scholarship for postgraduate study.
(b) The Emma Thomas Scholarship for postgraduate study.
(c) The Ida McGregor Scholarship for postgraduate study.
(d) The Women's Auxiliary offers bursaries for senior staff members for postgraduate study.

ALUMNAE ASSOCIATION, ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING BURSARY. — Bursary of $1,000 open to graduates of the Royal Victoria Hospital School of Nursing, accepted in an approved University program. Apply before March 31 to Alumnae Office, Nurses' Home, Royal Victoria Hospital, Montreal.

GOVERNMENT BURSARIES. — A limited number of bursaries are given by the Province of Quebec to nurses who wish to remain in the province, and who have been accepted for admission to the School.

KELLOGG FOUNDATION LOAN FUND. — Established through the generosity of the Foundation to assist graduate nurses who have unexpected expenses while registered in courses at the school. Consult the Director of the School for Graduate Nurses.

4.3 OPEN TO STUDENTS IN THE FACULTY OF RELIGIOUS STUDIES

GORDON R. STEPHEN JR. BURSARY FUND. — Available for students in the Faculty who are looking forward to some branch of the Christian Ministry. The Faculty recommends to the Student Aid Officers of the University.

HOUSTON BURSARY. — $400 for students studying for the ministry of the Presbyterian Church in Canada, or The United Church of Canada, with preference to any whose mother tongue is French.

4.4 OPEN TO STUDENTS IN THE SCHOOL OF SOCIAL WORK

4.4.1 BURSARIES AND LOANS

General information on bursaries and/or loans may be obtained from the Student Aid Office.

Some sources exist for both loans and bursaries through the School. Inquiries may be made at the time of application for admission to the School. Since the School does

not receive all the resources for bursary and/or loan purposes until late during the first term, students should endeavour to make other arrangements for their financial needs, whenever possible, prior to entering the School.

Usual funds available from the School include:

(1) General Bursary Fund
(2) Frances Anderson Memorial Bursary
(3) J. A. Klein Memorial Bursary
(4) Alumni Bursary

SCHOOL OF SOCIAL WORK PRIZE. — The Alumni Committee of the School of Social Work has established an annual prize to be awarded to the student with the highest standing in the Master of Social Work Program. The present value of the award is $50.

4.4.2 FEDERAL SCHOLARSHIPS AND BURSARIES

Under the Federal Welfare Grants program, a limited number of bursaries are available each year to students who commit themselves to enter employment in approved welfare programs. These bursaries are administered and partly financed by the various provinces (with the exception of Quebec which has not been participating in the plan). Application should be made to the Deputy Minister, Department of Public Welfare (or Department of Social Welfare) in the capital of the province where the applicant has legal residence.

The Federal Welfare Grants program also awards a number of scholarships based upon academic achievement. Application should be made to the Welfare Grants Division, Department of Health and Welfare, Ottawa, Ontario.

Overseas students should inquire of their governments concerning the availability of United Nations, Colombo Plan, or their country's own study grants.

4.4.3 PROVINCIAL

Most provinces offer bursaries on condition that recipients accept employment in those provinces upon graduation. Information should be obtained from Provincial Departments of Welfare. Quebec residents must apply before January 1 for educational bursaries for the following year. Application should be made to the following: Service des Bourses de Perfectionnement, Ministère de l'Education, Hôtel du Gouvernement, Québec, P.Q.

The Canada Student Loan Plan is available in provinces other than Quebec. Inquire of the Province.

4.4.4 VOLUNTARY AGENCIES

Local or national voluntary agencies often offer bursaries similar to those of the Provinces. Information may be obtained from the School.

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McGill University

FACULTY OF ARTS
FACULTY OF SCIENCE

1973-74

Dawson Hall
Telephone (514) 392-5088

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CALENDAR OF DATES 1973-1974

1973

July 2, Monday	Dominion Day — Administrative Offices closed.
August 14, Tuesday	Supplemental examinations begin.
September 3, Monday	Labour Day — Administrative Offices closed.
September 10, Monday *September 11, Tuesday* *September 12, Wednesday*	Registration of all students in University level — Arts, Social Work, Visiting and Special students in Arts.
September 13, Thursday *September 14, Friday* *September 17, Monday*	Registration of all students in University level — Science, Visiting and Special students in Science.
September 18, Tuesday *September 19, Wednesday*	Registration of all students in College Equivalent program — Arts, Science, Education and Management.
September 20, Thursday	Lectures begin in all years of Arts and Science.
October 1, Monday	Late registration.
October 4, Thursday to *October 12, Friday*	Change of course period.
October 8, Monday	Thanksgiving — Lectures cancelled — Administrative Offices closed.
October 26, Friday	Deadline for withdrawing ("W") from "A" (first term) courses.
November 6, Tuesday	Fall Convocation.
November 30, Friday	Deadline for withdrawing ("W") from "D" (year) courses.
December 19, Wednesday	Last day of lectures in Arts and Science.
December 24, Monday to *January 1, 1974*	Christmas and New Year Holiday — Administrative Offices closed.

1974

January 3, Thursday to *January 18, Friday*	Examinations in First term courses in Arts and in Science.
January 17, Thursday	January Registration.
January 21, Monday	Second term begins in Arts and in Science.
January 28, Monday to *February 4, Monday*	Change of course period for "B" (second term) courses only.
February 22, Friday	Deadline for withdrawing ("W") from "B" (second term) courses.
March 1, Friday and *March 2, Saturday*	Mid-term weekend holiday.
April 12, Friday to *April 15, Monday*	Easter — Lectures cancelled — Administrative Offices closed.
April 19, Friday	Last day of Lectures.
April 22, Monday	Examinations begin.
May 20, Monday	Victoria Day — Administrative Offices closed.
June 5, Wednesday to *June 8, Saturday*	Convocations.

1 THE UNIVERSITY

HISTORY

In 1813 the Hon. James McGill, a leading merchant and prominent citizen of Montreal, died and left in his will a property of 46 acres and a sum of 10,000 pounds to the already existing Royal Insitution for the Advancement of Learning upon condition that the latter erected "upon the said tract or parcel of land, an University or College, for the purpose of education and the advancement of learning in this Province"; and further upon condition that "one of the Colleges to be comprised in the said University shall be named and perpetually be known and distinguished by the appellation of 'McGill College'."

Owing to a lack of funds and persistent opposition the complete University which had been planned by the Royal Institution was not built, but after years of litigation and effort a Royal Charter was granted in 1821 and the University of McGill College was opened in 1829 with what remained of James McGill's legacy as its endowment, and teaching then started in the Faculties of Medicine and Arts. The medical faculty grew steadily, and after an amended Charter was secured in 1852 a new era of progress began for the Faculty of Arts with the appointment in 1855 of Sir William Dawson as Principal, a position which he held for thirty-eight years.

Since 1855 the University has grown vigorously, dividing itself into further faculties. In 1899 the Royal Victoria College was opened, a gift of Baron Strathcona, to provide separate teaching and residential facilities for women students. Gradually, however, classes for men and women were merged, and now the University is wholly coeducational. In 1907 Macdonald College was established at Ste. Anne de Bellevue, as a residential college for Agriculture, Household Science, and the School for Teachers. This general development was greatly facilitated by the generosity of Sir William Macdonald, whose gifts to the University included a Physics Building, a Chemistry and Mining Building, and an Engineering Building, in addition to the college named after him.

At present more than sixteen thousand students are taking regular university courses. New buildings have been erected or acquired to provide the undergraduate and research facilities needed by the increased student body, including Douglas Hall, now a coeducational residence, and large extensions of the Royal Victoria College for women. In 1959 the McConnell Engineering Building, the gift of Mr. J. W. McConnell, was opened. The Sir Arthur Currie Memorial Gymnasium, built in 1939, has been extended to include a swimming pool opened in 1950 and a Winter Stadium which was added in 1956. In 1962 His Royal Highness Prince Philip, Duke of Edinburgh, opened three new residences for men, Gardner, McConnell and Molson Halls, made possible by generous gifts from Mr. J. W. McConnell and the Molson family. These residences are now coeducational. The Leacock Humanities Building and the Roscoe Wing of the Royal Victoria College were used during the 1964-65 session. The Roscoe Wing and the West Wing now comprise the Royal Victoria College and provide residence facilities for 224 women. The East Wing and central section now house the Faculty of Music which moved to the new location in January 1972. The University Centre (Students' Union), the McIntyre Medical Sciences Building, and the Stewart Biology Building were open for the 1965-66 session. An extension to Chancellor Day Hall, housing the Faculty of Law and including a Moot Court Room, was opened for the 1966-67 session and the McLennan Library was in use for the 1968-69 session. Burnside Hall, housing the School of Computer Science and the departments of Geography and Mathematics, and the building providing facilities for the Faculty of Education (now established on the McGill campus) were in use for the 1970-71 session, and the Samuel Bronfman Building for Management and Business Administration was opened for the 1972-73 session. A similar growth has been maintained in the buildings and equipment of Macdonald College.

GOVERNMENT

McGill University is a Corporation created by a Royal Charter granted by the Crown of the United Kingdom, a general supervisory power being retained by the Crown and exercised through the Governor-General as *Visitor*.

The *Governors* of the University constitute the Royal Institution for the Advancement of Learning, a corporation existing under the laws of the Province of Quebec. In them is vested the management of finances, the appointment, in consultation with Senate, of Professors, and other duties. Twenty-five of the Governors are elected by the Board from amongst those nominated by the Nominating Committee; five are elected by the Graduates' Society; and five are elected by Senate from amongst its members, student members being eligible. The Board elects the Chancellor of the University and also, from among its members, a Chairman to preside at its meetings, who may also be the Chancellor. The Chancellor and the Principal are *ex officio* members.

The *Chancellor* is President of the Royal Institution for the Advancement of Learning, and Presiding Officer of Convocation and of Joint Sessions of the Board of Governors and the Senate.

The *Principal* is the academic head and chief administrative officer. He is appointed by the Board of Governors after consultation with Senate. He also holds the office of Vice-Chancellor of the University and is, *ex officio,* Chairman of Senate.

Senate consists of eighty voting members: the Chancellor, the Principal, the Vice-Principals, the Deans of the Faculties, the Dean of Students, the President of the Students' Society, thirty-two members elected by their Faculties, five Governors elected by the Board, eight students elected by the students, and certain *ex-officio* members with voice but no vote. The Senate is the highest academic authority of the University and has control over admission, courses of study, discipline, and degrees.

The carrying out of the regulations of Senate along with primary responsibility for the conduct of the educational work of the University is entrusted to the various Faculties and Schools.

FACULTY GOVERNMENT

The Faculties of Arts and of Science were formed in 1971 out of component parts of the Faculty of Arts and Science.

The Faculty of Arts comprises the following departments and programs: Anthropology, Art History, Centre d'Etudes Canadiennes-Françaises, Classics, East Asian Studies, Economics, English, French Language and Literature, French as a Second Language, German, History, Industrial Relations, Italian, Jewish Studies Program, Linguistics, Philosophy, Political Science, Religious Studies, Russian and Slavic Studies, Social Work, Sociology, Spanish Language and Literature.

In addition, some members of the departments of Geography, Mathematics and Psychology are affiliated with the Faculty of Arts, and these departments offer B.A. programs.

The Faculty of Science comprises the Departments of Biology, Chemistry, Geography, Geology, Mathematics, Meteorology, Physics and Psychology.

In addition, some members of the Departments of Anatomy, Biochemistry, Microbiology and Immunology, and Physiology in the Faculty of Medicine are affiliated with the Faculty of Science and these departments offer B.Sc. programs.

The Faculties each meet monthly to decide academic and other policy, and to receive reports of Faculty Committees.

The Faculties share a joint Student Affairs Office where students may obtain counselling and arrange for course changes, deferred examinations, etc. The Office is located on the ground floor of Dawson Hall (see page 19 for additional information).

STUDENT GOVERNMENT

All students registered in the University are members of the Students' Society except for students governed by the constitution of the Macdonald College Students' Society and students registered in the Faculty of Graduate Studies and Research who are non-resident students or full-time members of the teaching staff.

The executive and legislative authority of the Society is vested in the Executive Committee and Students' Council respectively. The Council, as the governing body, is responsible for the proper functioning of all activities of the Society. All undergraduate societies, major activities, clubs, societies, publications and other campus organizations of the Students' Society are under its jurisdiction. It is the only recognized medium, apart from the Students' Athletics Council, between the student body and the University authorities.

The Council is responsible to the students through open meetings and referendums of the Students' Society, and operates according to the constitution of the Students' Society.

Full details of the operations, constitution, officers and committees of the Students' Society are given in the *Student Handbook,* obtainable from the Students' Society or Admissions Office upon request.

UNIVERSITY LIBRARIES

The University libraries include the McLennan Library, the Redpath Library and various faculty and departmental libraries in other buildings and the library at Macdonald College in Ste. Anne de Bellevue. The McLennan Library houses the main research collections for humanities and the social sciences, while the Redpath Library provides expanded facilities for the undergraduate library, the Blacker-Wood collection and the Blackader-Lauterman collection. The libraries of McGill now contain more than 2,200,000 items and receive 18,200 serial titles, many Government publications and transactions of various literary and scientific societies. The McLennan Library is rich in early printed books, in Canadiana, including the Lande Collection, and in rare pamphlets of the sixteenth to eighteenth centuries. It has special collections of David Hume, Rousseau, Rilke, Blake, Napoleon, Stephen Leacock and Rudyard Kipling, the Stearn Library of books and puppets, illustrating the history of the marionette theatre of all nations, and the William Colgate collection devoted to typography.

THE McLENNAN LIBRARY

1) THE MAIN LOAN AND RESEARCH COLLECTION, concentrated on the social sciences and humanities as well as other subjects — monographs, journals, documents, microfilms.
2) THE REFERENCE COLLECTION of encyclopaedias, dictionaries, bibliographical aids, floor. This is an internationally-known collection of some 67,000 items.
3) A CURRENT PERIODICALS READING ROOM housing approximately 2,400 titles is on the second floor.
4) A GOVERNMENT DOCUMENTS COLLECTION AND READING AREA is located on the second floor.
5) A RARE BOOKS AND SPECIAL COLLECTIONS DEPARTMENT including a reading room is on the street floor. The Lande Collection of Canadiana is on the fourth floor.

THE REDPATH LIBRARY

1) THE UNDERGRADUATE LIBRARY. This is an open access circulation collection of some 80,600 items. The aim of the University is to bring this collection to over 100,000 volumes by May 1973. Services of the U.L. include Readers' Services, Reserves, Circulation and a Periodical Reading Room. The Undergraduate Library occupies the basement, street and main floor levels.
2) THE BLACKER-WOOD LIBRARY OF ZOOLOGY AND ORNITHOLOGY is on the second floor. This is an internationally-known collection of some 67,000 items.
3) THE BLACKADER-LAUTERMAN LIBRARY OF ARCHITECTURE AND FINE ARTS occupies the entire third floor and houses approximately 30,200 items, numerous periodicals and architectural drawings.
4) THE AUDIO-VISUAL ROOM shares the second floor with the Blacker-Wood Library and is furnished with 225 carrels equipped with audio-visual devices such as slide projector, tape recorder, filmstrip and super-8-loop projectors and television screens.

Allan Memorial Institute (AMI)
Psychiatry collection
1025 Pine Ave., W.
Tel: 842-1251 ext. 269

Botany & Genetics
Stewart Biology Bldg.
Rm S3/1
Tel: 392-5829

Dentistry
Strathcona Anatomy and Dentistry Bldg.
Main floor
Tel: 392-4926

Divinity
See Religious Studies Library

Education
Education Bldg.
3700 McTavish St.
Tel: 392-8805

Engineering
Macdonald Engr. Bldg.
Tel: 392-5914

Geography
Map collection
Burnside Hall
Rm. 524
Tel: 392-5492

School of Nursing
3506 University St.
Tel: 392-5027

Law
3644 Peel St., 4th fl.
Tel: 392-5067

Library Science
McLennan Lib., Street level
Tel: 392-5931

Macdonald College
Agriculture
Ste. Anne de Bellevue, P.Q.
Tel: 453-6580 ext. 213

Islamic Studies
Leacock Bldg.
Rm 911
Tel: 392-5197

Management
Bronfman Building
1001 Sherbrooke St.
Tel: 392-5804

Marine Sciences Centre
772 Sherbrooke St. W.
Tel: 392-5723

Mathematics
Burnside Hall
Rm 1105
Tel: 392-8273

Medical
McIntyre Medical Sciences Centre
1200 Pine Ave. W.
3rd floor
Tel: 392-4334

Meteorology
Burnside Hall
7th floor
Tel: 392-8237

Music
(Books, scores, records)
Strathcona Music Bldg.
555 Sherbrooke W.
Tel: 392-4530

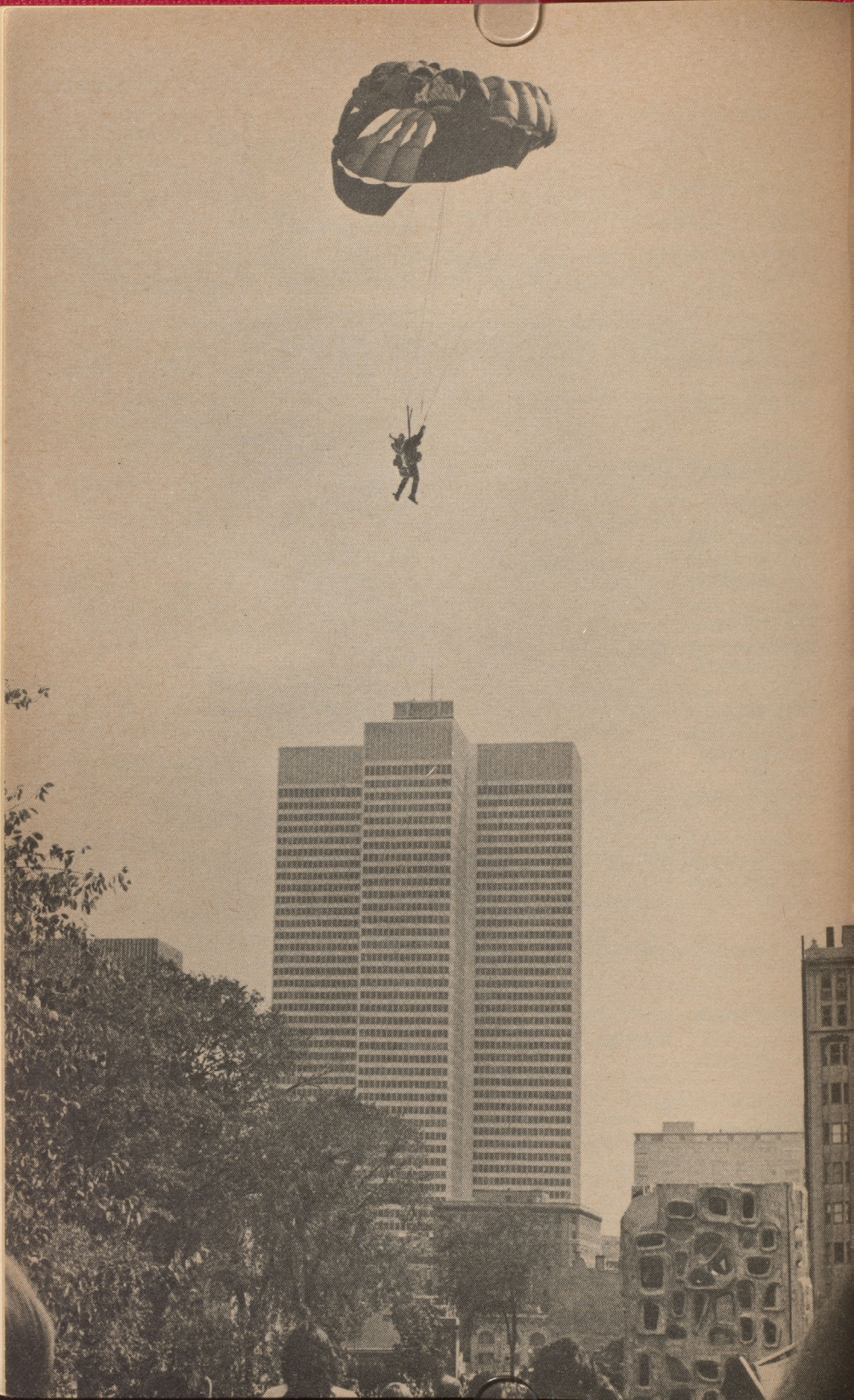
Osler
History of Medicine collection
McIntyre Medical Bldg.
1200 Pine Ave. W.
3rd floor
Tel: 392-4329

Physical Education Library
Currie Gymnasium
475 Pine Ave. W.
Tel: 392-8893

Physical Sciences
Frank Dawson Adams Bldg.
3450 University St.
Tel: 392-5729

Religious Studies
3520 University St.
Tel: 392-4832

Social Work
3506 University St.
Tel: 392-5046



2 APPLICATIONS AND ADMISSIONS

GENERAL

The Faculty of Arts and the Faculty of Science offer programs leading to the degrees of B.A., B.Sc. and B.S.W.

The academic year at McGill runs from mid-September until early May, with approximately two weeks vacation at Christmas. The normal period of admission is in September; however, the University is instituting a January admission, and interested students should seek further information from the Admissions Office in September 1973.

The deadline for submission of applications for September admission is March 1 of the year for which the student wishes to apply. All applications must be accompanied by a non-refundable fee of $15.00 payable by certified cheque or money order in Canadian funds made out to McGill University.

Admission is selective, and students are reminded that fulfilment of the minimum requirements by no means guarantees acceptance.

Although our Admissions Officers are always pleased to meet prospective students, a personal interview is not required for admission.

ENTRANCE QUALIFICATIONS

QUEBEC STUDENTS

Holders of the Diploma of Collegial Studies are considered for admission to the first year of an appropriate three year university program (90 credits).

Entrance to the Faculty of Arts

Although it is preferable to begin a specialization at CEGEP, the Faculty feels that the basic courses in English and Humanities remain the minimum requirements for many programs.

It is recommended that students planning to enter Anthropology, Economics, Geography or Psychology should take two Mathematics courses during their CEGEP years.

Entrance to the Faculty of Science

Students proceeding to studies in the Biological Sciences should have completed at least the following courses:*

Biology	101-301 or 101-921 (101-301 recommended)
Chemistry	202-101, 202-201
Mathematics	201-103, 201-203
Physics	203-101 or 203-102; 203-201 or 203-202; 203-301 or 203-302.

Students proceeding to studies in the Physical Sciences should have completed at least the following courses:*

Biology	101-301 or 101-921 (101-301 recommended)
Chemistry	202-101, 202-201
Mathematics	201-103, 201-105, 201-203
Physics	203-101 or 203-102, 203-201 or 203-202, 203-301 or 203-302 (203-101, 203-201, 203-301 recommended)

* Quebec CEGEP course numbers. These courses correspond to: Introductory Biology, Introductory College Chemistry, Calculus I and II (201-105 is Analytic Geometry and Vectors), and Introductory College Physics.

PROVINCES OF CANADA OTHER THAN QUEBEC

Entrance to the Faculty of Arts

Ontario Grade 13 students may be admitted to a 90-credit university program if they have completed five subjects with an average of 70%. English should be included in the student's program; the four elective courses should be appropriate to the program which the student wishes to enter at McGill. Students having only four subjects will be required to make up an additional six credits at McGill.

Students from provinces of Canada other than Quebec, Ontario and Newfoundland who have completed Grade 12 with an average of 70% in appropriate subjects are considered for admission to a program requiring the completion of 120 credits (usually four years are required to complete the program).

Entrance to the Faculty of Science

The three-year programs in the Faculty of Science have been designed on the assumption that the student has a background in science equivalent to that provided by the Quebec Diploma of Collegial Studies in science; that is, that he has completed the equivalent of introductory college-level courses in Biology, Chemistry, Physics, and Mathematics. These courses are referred to as prerequisite courses, 6 credits being assigned to each full-year course.

Ontario Grade 13 graduates and students who have completed first year Science at Memorial University, Newfoundland, are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. Thus, a student who has completed Biology, Chemistry, Physics, Mathematics and one additional non-Science academic course enters a university program requiring the completion of 90 credits (usually three years are required to complete the program).

Students from provinces of Canada other than Quebec, Ontario and Newfoundland who have completed Grade 12 with adequate standing in appropriate subjects are considered for admission to a university program requiring the completion of 120 credits (usually four years).

NON-CANADIAN APPLICANTS

Entrance to the Faculty of Arts

Students with a strong academic record in five appropriate Ordinary Level papers PLUS one full year of formal schooling beyond Ordinary Level may be considered for entrance to an undergraduate program requiring the completion of 120 credits (usually four years).

Students from the United Kingdom and Commonwealth countries may be admitted directly into a university program requiring the completion of 90 credits (three years) with five General Certificate of Education papers, at least two of which must be at the Advanced Level or with four different G.C.E. papers, at least three of which must be at the Advanced Level. An average grade of C or better is required. One of the five (or four) G.C.E. papers must be English Language.

High School graduates from the United States are admitted directly to an undergraduate program requiring the completion of 120 credits. All applicants should have followed academic programs designed for university entrance. Students who have successfully passed Advanced Placement examinations in appropriate subjects with a grade of "3" or better will be granted some advanced standing. Students with two or three suitable Advanced Placements may be admitted to a program requiring completion of 90 credits.

Entrance to the Faculty of Science

The three-year programs in the Faculty of Science have been designed on the assumption that the student has completed the equivalent of introductory college-level courses in Biology, Chemistry, Physics, and Mathematics. These courses are referred to as prerequisite courses.

Graduates from Grade 12 in the United States are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. An Advanced Placement science course is considered the equivalent of 6 prerequisite credits; a grade of "3" or better is required for Advanced Placement credit to be granted.

Students from the United Kingdom and Commonwealth countries are normally required to have completed examinations in five different G.C.E. subjects including English, Chemistry, Physics, and Mathematics, at least two of which must be at the Advanced Level. Such students are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. Each G.C.E. Advanced Level paper in Science with a grade of C or better is considered the equivalent of ten prerequisite credits.

Students with a strong academic record at "O" level who have also completed a full year of schooling beyond Ordinary Level may be considered for admission to an undergraduate program requiring the completion of 120 credits (usually four years).

Students From Other Countries

Students from other countries are advised to consult the *General Announcement* or the Admissions Office for specific information on the status of their national education certificates.

ADDITIONAL ENTRANCE REQUIREMENTS

1) STUDENTS IN CANADIAN HIGH SCHOOLS OUTSIDE QUEBEC must write the tests of the Service for Admission to College and University (SACU). Application forms and information concerning these tests may be obtained through the schools or from:

   SACU Test Administration
   151 Slater Street
   Ottawa K1P 5N1, Ontario.

2) STUDENTS FROM THE UNITED STATES must write College Entrance Examination Board tests; the two scholastic aptitude tests, the English Composition test, and two other achievement tests appropriate to the program which they wish to enter at McGill. Students from the Eastern United States may obtain information about the tests by writing to:

   The College Entrance Examination Board
   Box 592
   Princeton, New Jersey 08540

   Students from the West should write to:

   The College Entrance Examination Board
   Box 1025
   Berkeley, California 94701

3) STUDENTS FROM OVERSEAS are advised to write CEEB or SACU tests to support their application.

4) NON-CANADIAN APPLICANTS WHOSE MOTHER TONGUE IS NOT ENGLISH must submit acceptable evidence of facility in English. The following evidence is acceptable: the Test of English as a Foreign Language (TOEFL); the University of Michigan English Language test; the Certificate of Proficiency in English issued by the Universities of Cambridge and Michigan.

   TOEFL is preferred by the University; it is administered by the College Entrance Examination Board and is easily available throughout the world.

   Students who cannot obtain a TOEFL bulletin and registration form locally should write well in advance for them to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540, U.S.A.

5) Applicants to the Faculty of Science from outside Quebec who believe they have taken the equivalent of one or more of the prerequisite courses, but who do not have acceptable certification of their performance in these courses, should inquire at the Admissions Office as to their eligibility to take Placement Examinations at McGill in these courses.

TRANSFER STUDENTS FROM OTHER UNIVERSITIES

McGill University accepts applications from students wishing to transfer from other universities. At least sixty credits towards graduation must be earned at McGill for students proceeding to the B.Sc. degree; at least forty-five McGill credits are normally required for the B.A. degree.

Such applications are considered when the student's cumulative grade point average (CGPA) is 3.0 or higher, and when his course background suits his intended program at McGill.

GENERAL INFORMATION FOR NON-CANADIAN STUDENTS

A pamphlet describing immigration regulations in detail and containing notes and guidance to students from other countries is available from Canadian immigration offices, Canadian Embassies and British Consular offices, or from the Immigration Branch, Department of Citizenship and Immigration, Ottawa, Canada. Local immigration officers will be ready to give advice and help.

A useful handbook entitled *University Study in Canada* can be obtained from Canadian Embassies, Consulates, and the office of High Commissioners and Trade Commissioners. A leaflet entitled *Notes for Foreign Students Who Wish to Attend a Canadian University* may be obtained from The Association of Universities and Colleges of Canada, 151 Slater St., Ottawa, Ontario K1P 5N1.

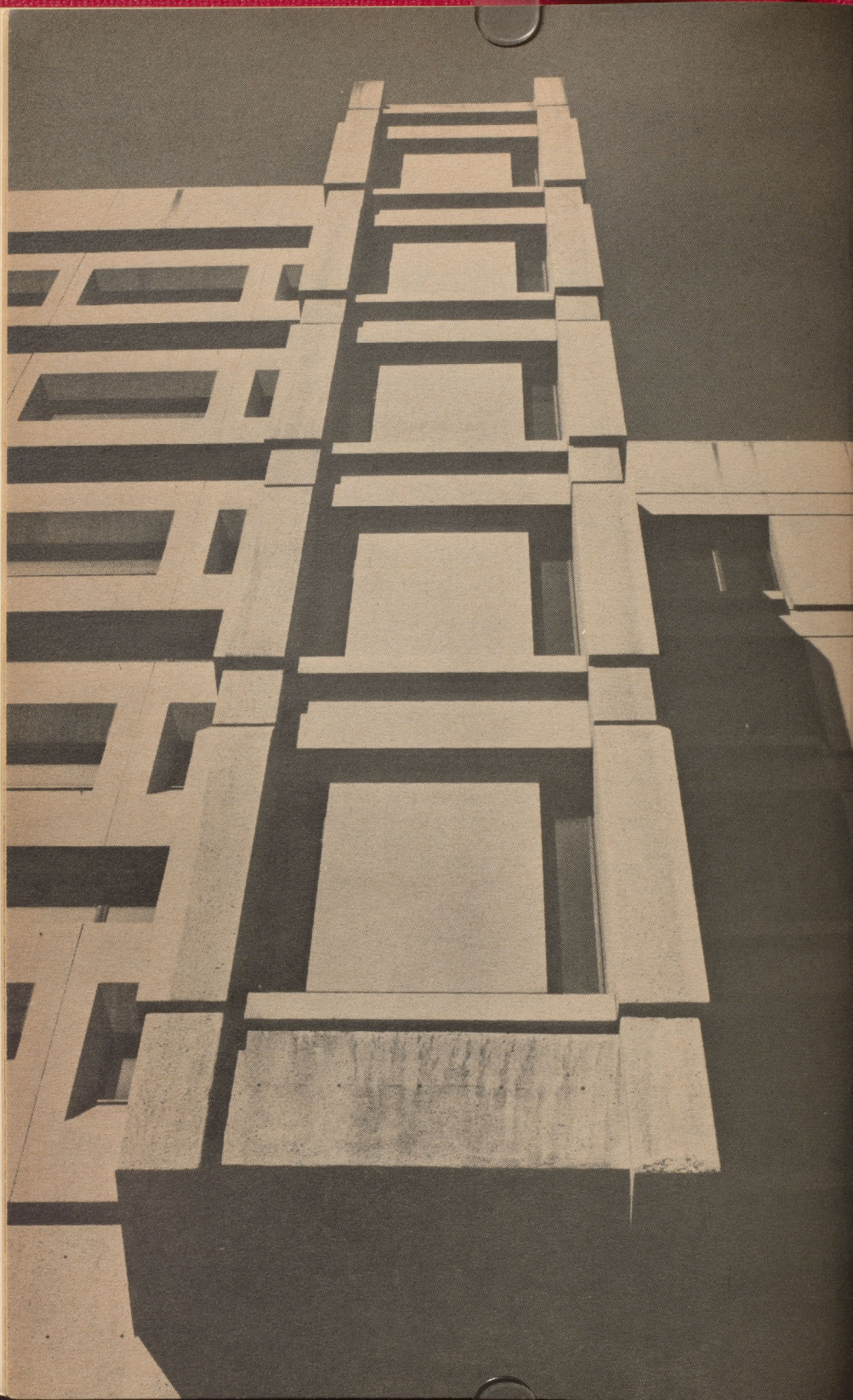
Further information may also be found in the McGill University *General Announcement*, available at the Registrar's Office.

READMISSION

A student wishing to return to the Faculty of Arts or Faculty of Science after an absence of a portion of an academic year or more must follow the procedures outlined in the section on Faculty Regulations, page 40.

INTER-FACULTY TRANSFER

In certain cases students will be permitted to transfer from another faculty to Arts or to Science. Information and inter-faculty transfer forms are available at the office of the Associate Dean.



3 FINANCIAL INFORMATION

TUITION

The fees for full time students include all the regular charges of the University for the full academic year for registration, tuition, laboratories, libraries, graduation, student services and Students' Society Fees.

FULL-TIME COLLEGE EQUIVALENT STUDENTS

	Bona fide Quebec Students	*Non-Quebec Students*
Arts	$ 460.00	$ 638.00
Science	460.00	703.00

FULL-TIME REGULAR STUDENTS

Arts	638.00
Science	703.00

PART-TIME, SPECIAL AND VISITING STUDENTS

Per 6-credit course	150.00
Per 3-credit course	75.00

The maximum fee charged for courses taken will not exceed the published fee for full time regular students, but in all other cases, the following additional fees apply:

a) If taking eighteen or more credits:

Student Services	27.00
Students' Society	28.00

b) If taking fewer than eighteen credits:

Students' Society only	10.00
full Student Services	37.00

REGULATIONS FOR PAYMENT OF FEES

1. Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due within 10 days after registration, the second instalment before January 15, 1974.

2. Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 23, 1973, otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all returning students, either with their Sessional Reports of Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this award for payment of the first instalment of fees, must obtain from the Student Aid Office, McGill University, a *Permit to Delay Payment of Fees.*

The second instalment is due by January 15, 1974. A late payment fee as stated above is charged for payment after the specified dates.

3. Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

SPECIAL FEES AND PENALTIES

Application for Admission (for new students only)	$ 15.00
Late registration	25.00
Late payment (after specified date)	
First 30 days	10.00
After 30 days	25.00
Graduation in absentia	5.00
Duplicate diploma	10.00
Certified transcript of student's record:	
First 2 copies each	1.00
Additional copies, up to 10 copies made at same time, each	0.10
Re-reading examination paper	10.00
Supplemental examinations, each paper	10.00
Changes in course, each change after specified change of course period	5.00

Residence Fees:
See page 22.

SCHOLARSHIPS AND FINANCIAL AID

ENTRANCE SCHOLARSHIPS

In general, the University's system of entrance scholarships is designed to enable good students from all parts of Canada to attend McGill. Students who have obtained a high first class academic standing, or who expect to obtain such standing in their examination results, should apply for an entrance scholarship by completing the Application for Entrance Scholarship form. These forms may be obtained from the Admissions Office and must be submitted before March 1.

The policy of the University is to recognize and honour scholarship. When a student has been selected for an award and is in financial need, it is the further policy of the University to meet that need as far as resources permit. In order to be considered for a scholarship of major financial value, the applicant must complete the Application for Financial Aid. The amount and nature of financial aid are determined by the Student Aid Office.

Although there are some funds available in certain disciplines which enable the University to award scholarships of major value, in general a student is expected to apply first to his own province and to accept the maximum loan and bursary aid offered by this province before receiving any augmentation of his McGill Scholarship.

PROVINCIAL AND FEDERAL AID

In all cases, a basic qualification is that the applicant must be a Canadian citizen or a Landed Immigrant with one year's residence and domicile in the province to which he applies.

In all provinces, except Quebec, the provincial authority listed below administers the Canada Student Loan Plan (Federal) as well as their own programs. The addresses are as follows:

Quebec: Apply for a Quebec registration card, after May 15, at the Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec.

Ontario: Student Counselling-Student Aid Office, Room 110, F. Cyril James Building, McGill University, P.O. Box 6070, Montreal 101, Quebec.

New Brunswick: Department of Youth & Welfare, Fredericton, N.B.

Yukon Territory: The Students Financial Assistance Awards Committee, c/o Superintendent of Schools, Box 2703, Whitehorse, Yukon.

Northwest Territories: c/o Education Division, Department of Northern Affairs & Resources, 150 Kent Street, Ottawa, Ontario.

For the Provinces of Newfoundland, Prince Edward Island, Nova Scotia, Manitoba, Saskatchewan, Alberta, British Columbia: write to the Provincial Department of Education.

BURSARIES AND LOANS

These may also be available to non-scholarship students through the Student Aid Office if other sources of aid are genuinely inadequate.

STUDENTS FROM SCHOOLS OUTSIDE CANADA

Students from schools outside Canada are ineligible for entrance scholarships. They are expected to present evidence to immigration authorities that they have adequate funds for their studies in Canada. All who wish to study in Canada should consult the Ministry of Education in their home country for financial assistance.

SUMMER WORK AND PART-TIME WORK. Non-Canadian students must apply to the Canadian Immigration authorities for permission to obtain employment.

UNITED STATES CITIZENS

The National Defence Loan is not tenable in Canada, but several states have long term loan plans which are tenable here. Students should inquire at the Department of Education in their state capital and also at local banks which may operate a Higher Education Loan Plan.



4 STUDENT SERVICES AND FACILITIES

DEAN OF STUDENTS

The Dean of Students, Dr. Saeed Mirza, works with student officers and organizations and attempts to provide liaison between students, collectively and individually, and other sectors of the University. Working with the Dean of Students in the area of student services is the Associate Dean of Students, Dr. Elizabeth Rowlinson. Both the Dean and the Associate Dean are available for consultation with individual students who may wish to discuss with either of them problems not already provided for by one or other of the existing services. The office of the Dean of Students maintains an "open-door" policy and students are invited to make use of these services at any time.

Location: 3465 Peel St.

Dr. Saeed Mirza	392-5287/5288
Dr. E. Rowlinson	392-4551

ORIENTATION SERVICE

The Orientation Service is a pre-registration counselling service designed to assist incoming students in selecting their courses and to introduce new students to the various aspects of the University.

The objectives of the program are: to provide information and advice on courses and programs of study according to the students' vocational expectations, interest, ability and aptitude; to acquaint students with the many services available at McGill, and to encourage their use; to tell students about registration procedures and offer suggestions which might facilitate the process; to provide the kind of information new students need to resolve academic and other problems (i.e. change of course, etc.); to familiarize students with the geography of the campus, and to introduce them to the libraries; to provide the opportunity for incoming students to meet individual members of the academic staff in an informal and friendly atmosphere.

Incoming students are invited to participate in a one-day orientation session consisting of the following:

A group meeting in the morning to discuss registration procedures, student services, the program for the day and questions of a general nature. Each student is assigned to an individual counsellor at this time.

McGill students conduct campus tours in the morning and in the afternoon. The staff of both the Redpath and McLennan libraries provide an introduction to the libraries.

A Social Hour is held in the lounge of the Mathematics Department daily from four to five p.m. Academic staff and representatives of Student Services drop in to enjoy a cup of coffee and chat with the students. The students in turn are given the opportunity to learn more about the University and discuss programs on a friendly basis.

COUNSELLING FOR NEW STUDENTS

Out-of-province students admitted to a program requiring between 97 and 120 credits must first consult a counsellor in Dawson Hall. In some instances, they will be referred to a departmental Academic Adviser; in most others they will be considered to be in the "Freshman" program, with their adviser for the first year being a staff member in Dawson Hall. (See Faculty Regulations, Academic Advisers, page 34.)

COUNSELLING IN THE FACULTIES OF ARTS AND OF SCIENCE

Students are urged to make full use of the advice and counselling offered by the Faculties of Arts and Science. Prospective students who are undecided as to a choice of program or orientation should consult an adviser in the Student Affairs Office, Dawson Hall. These advisers are ready to provide information and advice on courses and programs of study. Incoming students are asked to contact the office as early as the month of March.

Students who have decided on their program of studies, and who wish to proceed directly to an Academic Adviser for completion of a Study Plan Form may do so.

The advisers in the Student Affairs Office are available to undergraduates for consultation throughout the academic year. Experienced personnel answer questions and offer guidance each weekday from 9:00 a.m. to 5:00 p.m.

TUTORIAL SERVICES

The Arts and Science Undergraduate Society, with the co-operation of the Faculties, sponsors an extensive Tutorials Program; its services are available to students during the Fall and Spring terms. Students may be tutored by senior honours and graduate students specializing in the majority of fields within the Faculties. Sessions are approximately one hour in length and normally two to four students are tutored at each session. The cost to the student is minimal and depends on the number of students in the group; the Society and the University by joint agreement finance the difference between the nominal fees and the tutors' honorarium. Interested students may obtain further information from the ASUS office, Room 30, Morrice Hall (392-5038), or from the Student Tutoring Centre (392-6741), 522 Pine Avenue West.

BOOKSTORE

The McGill University Bookstore, located in the Bronfman Building at 1001 Sherbrooke Street West, provides a comprehensive stock of current textbooks, reference material and academic supplies as well as items of general interest. Although all sales are at normal retail prices, the cost of maintaining adequate stocks of required material is high and the Bookstore is a non-profit operation.

RESIDENTIAL FACILITIES

Types of Residences

McGill offers three types of residence accommodation:

1. Royal Victoria College houses graduate and undergraduate women.
2. Douglas Hall houses both men and women, and is exclusively a graduate residence.
3. Gardner, McConnell and Molson Halls each house both men and women, most of whom are undergraduates, although some graduate students also choose to live there.

Location

The Co-educational Residences are located on the wooded slopes of Mount Royal, adjacent to the University playing fields. They are approximately two blocks away from the main campus, and a ten-minute walk from the centre of downtown Montreal.

Royal Victoria College is on campus close to the major shopping and cultural areas of the city. Bus and subway stops are nearby.

Academic Staff

The academic staff of each hall consists of a Residence Director or Warden, Assistant Directors, and Residence Fellows or Dons. One of the main functions of the academic staff is to get to know students individually and, if a student requests it, to give advice on personal or academic matters.

Rooms and Facilities

Except for a few rooms at Royal Victoria College all rooms are for single occupancy and in each, besides a bed and bed-linen, there is a desk, chair, chest of drawers and closet. Linen and towels are changed weekly. The co-ed residences have maids who clean the rooms, but in all halls residents are expected to make their own beds and tidy up. Each hall has coin-operated automatic washers and dryers, as well as ironing facilities; an outside dry cleaning firm also calls regularly at the residences. Telephones located on each floor are operated through hall switchboards; in addition, each room is wired for a private telephone. There is plenty of storage space for ski equipment, trunks, and suitcases in every hall. Limited parking space is available in the co-ed complex only.

The halls have TV, music, sewing, and stereo rooms, and a well-stocked library of magazines, books and newspapers. The co-ed residences provide a calculating and typing room, and R.V.C. has the use of a swimming pool located within the building.

Meal Service

Residents at Molson, McConnell and Gardner halls take their meals together in a large centrally located dining hall. Douglas Hall and the Royal Victoria College have their own dining rooms. Students may choose either a seven or five day meal plan. Bag lunches are available. There are kitchenettes on every wing of the co-ed residences where residents may keep food and prepare hot or cold snacks at any time. In addition vending machines in every hall dispense soft drinks, sweets and pastries. Students in the co-ed residences can rent small refrigerators for their rooms.

Diets

Limitations of facilities do not permit catering for special religious diets in the dining halls, although the kitchens will seek to meet special needs whenever possible. Temporary diets because of sickness may be prepared on doctors' orders.

Health

In case of illness residents are usually referred to the University Health Service nearby. However, there is a nurse on duty every day in the residence dispensary or infirmary, and live-in nurses who keep evening office hours and who are also available for emergency treatment any time.

Government

Each hall has a Residents Council, elected yearly by the residents at a designated time during the academic year. It is the job of Council to gather hall opinions, set policy, supervise financial affairs, and organize sporting and recreational activities within the residences.

Guidelines

McGill's residences are run for the convenience and advantage of the students living in them. What "rules and regulations" do exist are decided upon and administered by the students themselves. Basically, living together in any community requires just a single rule: respect for the rights of others. In each hall there is a House Committee which is elected from the student body at the beginning of each year to deal with any problems that may arise.

Application and Admissions

Please note that the procedure governing residence admissions is entirely separate from that of University admissions. Application forms for both the Royal Victoria College and the Co-ed Residences are mailed out with all academic application forms.

Owing to a shortage of housing, the University cannot guarantee every student a place in residence. There is a Housing Service to assist those seeking suitable off-campus housing.

Residence applications should be returned as soon as possible, preferably before April first.

McGill residence admission policy extends to all students — Montreal-area students as well as out-of-town students, on a first-come, first-served basis.

Room and Board Charges in University Residences

Single Rooms — The following sessional fees apply from lunch September 10 to breakfast May 2 and include room and board charges, key deposit and residence activities fees.

Room and all meals	$1,205
Room and weekday meals	1,065

A limited number of students, whose academic programs make it difficult for them to dine in residences may be accommodated on a room only basis at lower sessional fees which are available on request.

Double Rooms — There are a limited number available in Royal Victoria College. Sessional rates are $50.00 lower than those indicated above.

Exclusions — Meals on the following holidays are not included: September 3, Labour Day; October 8, Thanksgiving; March 1, Mid-Term; April 12 and 15, Easter; May 20, Victoria Day; Christmas recess of 16 days, dates to be announced.

Meal Prices — Residents may obtain meals, in addition to those covered by sessional fees, at the following student rates.

Breakfast	$ .85
Lunch	1.35
Dinner	1.65

Extended Stays

Because of registration, examinations or other special circumstances, residents may be permitted to occupy their rooms for a limited time before or after the period covered by their sessional fees. The charges for such extended stays are $2.60 per day, excluding meals and $5.00 per day, including meals. One of these options must apply for the full period of the extended stay. Payment for extended stays must be made in advance for the duration of the stay or a period of one week, whichever is less.

Other Regulations

Students accepted for residence must pay a deposit of $50.00 which will be deducted from their residence fees for the second term. It will be refunded only if written notification is received before July 1, or if the examination results prevent registration.

Payment of Residence Fees

Entering or transfer students: Fees may be paid in two instalments — the first within ten days after registration, and the second before January 15.

Returning students: First instalment must be paid August 23 and the second before January 15.

The sessional fees include a house fee of $9.00 collected by the University on behalf of the Residents' Council of each hall, and a $6.00 key deposit which is refunded at the end of the session.

HOUSING SERVICE

A service to aid students in locating off-campus accommodations is available. Students who wish further information may inquire at the office of the Dean of Students, 3465 Peel St.; Telephone 392-5288.

STUDENT COUNSELLING – STUDENT AID OFFICE

Student Counsellors are available to students of all Faculties for discussion or consultation on any problem of a non-academic nature, confidential or otherwise. Referral to more specialized counselling is made where this is deemed advisable. The Student Aid Office handles all matters relating to financial assistance (scholarships, bursaries and loans), whether university, provincial or federal. Non-Canadian students requiring certification of registration and/or letters of advice to Foreign Exchange Control Boards obtain these from this office.

Location: 3465 Peel St.

Mr. J. Stanley Kennedy, Director	392-5258
Mr. J. H. Richardson	392-5257
Miss Norma Jameson	392-5256

GUIDANCE SERVICE

Psychological services are offered designed to assist individuals in their personal development, especially in their career plans. The activities of the service complement the other consulting and advisory agencies available. Staffed by psychologists, the service is a professional facility for both indidivual and group use.

The aim of the service is to help individuals (a) to make sound and flexible plans for the future, (b) to mobilize the energy to carry these plans through and (c) to review objectively and learn from the consequences of their decisions.

Participants are guided by involving them in a number of activities including psychological counselling or therapy, testing, auto-biographical review career information library, use of referral resources, special activities such as effective reading programs, how to write resumes and how to secure good recommendations. The time involved is around 20 hours spread out to suit the convenience of the individual.

The Career Information Library is available with information on personal adjustment, academic life, sociology of work and alternatives for further education in the collection of university calendars.

The services are free for members of the University and are also available to the public on payment of necessary fees. Full descriptive literature is available by request in person, by phone or mail.

Location: 522 Pine Avenue West

General Information: 392-5119

STUDENT PLACEMENT OFFICE – CANADA MANPOWER CENTRE

The Placement Office provides a range of services to McGill students and recent graduates, in the field of student and graduate employment.

Students who seek information about job and career opportunities can meet with a placement counsellor, individually, or in groups. There is literature available, such as employer directories, company brochures, advice on career opportunities, writing a resumé, preparing for an interview, etc. Meetings, seminars and panels are arranged for the purpose of providing information on the world of work. (Students are reminded of the career library and other assistance available through the Guidance Service.)

Students looking for specific jobs will find employment opportunities posted at the Placement Office. A number of employers visit the Placement Office during the first term to interview students, particularly those seeking permanent employment. Registered students who have been interviewed by a placement counsellor are referred to suitable job vacancies that are not posted.

Location: 762 Sherbrooke St. W.

General Information: 283-4411

HEALTH SERVICE

When students enrol at McGill University they have available to them a full range of medical service provided by the McGill University Health Service. Medical clinics operate daily, five days of the week from 9:00 a.m. - 5:00 p.m. A physician is always on call at night and on week-ends and he can be contacted by dialing the Health Service number. There are both male and female physicians on staff as well as a competent staff of college health nurses.

This service is available to all full-time students, undergraduate and postgraduate. Postdoctoral students, extension course, diploma course and part-time students taking less than three credits are welcome to consult us if a health problem arises but the full range of services may not be available to them. Students are asked to bring their Medicare cards or equivalent. *All information is completely confidential and forms no part of any "University record".*

Many students are seen for discussion about sexual life, contraception, drug problems and venereal disease. We urge students who suspect that they have V.D. to consult us because to neglect this condition can be most damaging. We invite students who are concerned about a drug problem to contact the Health Service and most particularly the Mental Health Section.

Part of the Health Service consists of a Mental Health Service which makes available to students psychiatric and psychological help. Students who wish to come are advised to make an appointment. If a psychological emergency arises the student should come directly to the Mental Health Service or phone immediately. All contacts by students with their service are kept completely confidential.

PARTICIPATION IN ATHLETICS: A student in any academic year wishing to participate in heavy contact athletics, e.g. football, will be required by the Athletics Department to undergo a physical examination at the University Health Service. A student who has received medical attention for an illness or accident must be declared fit by the Health Service before he may again participate in athletics.

In order to ensure medical coverage while a student at McGill, Canadian students from provinces other than Quebec are advised to consult with the medicare and hospital insurance offices of their own province before coming to McGill. This is particularly important since residents of other provinces are not covered by Quebec Medicare and Hospitalization while studying at McGill.

Non-Canadian students, whether undergraduate or postgraduate, are obliged to enrol in a medical and hospital insurance program. Consequently, the student and his dependents are covered to a large extent for medical and hospital expenses during the academic year. Information concerning this program can also be obtained at the general office of the Health Service.

Location: 517 Pine Avenue West

Appointment and General Office	392-5441
Director: Dr. J. G. Lohrenz	392-5444
Mental Health Section	392-5449

CHAPLAINCY SERVICE

A counselling service is available through the campus chaplains independent of McGill administration. It is established to serve the needs of all students through individual counsel or group encounter. The service is related to areas such as marriage counselling, value systems and group dynamics. In general an attempt is made to respond to the varying crises of the student community. There are also open meetings on pertinent topics throughout the year. These are announced in the McGill Daily when they occur. Counsellors are available either through "3521" or through the listed sponsoring agencies.

There is a lounge and reading area and books and periodicals are available to students free of charge. The lounge is open for student use throughout the day. Information concerning individual denominational services is available at "3521".

Location: 3521 University Street

General Information:	392-5890
Sponsoring Organizations	
Newman (Roman Catholic)	
3484 Peel Street	288-1806
Hillel	
3460 Stanley Street	845-9171
Lutheran	
3521 University Street	392-5890
Student Christian Movement	
3625 Aylmer Street	392-4947

UNIVERSITY CENTRE

The University Centre at 3480 McTavish is the home of most of the extra-curricular activities at McGill. It houses offices for the Students' Society and all the major activities including the McGill Daily and Radio McGill. There are meeting rooms that are available to students, a pizza shop and cafeteria on the first and second floors, a coin laundry in the basement, a free telegram service provided by the amateur radio club, and a free lunchtime theatre. For information call 392-8922.

Extra-Curricular Activities

Complete details of all extra-curricular activities may be found in the Student Handbook, published yearly by the Student Society and available at registration.

The Student Handbook lists over 250 activities and clubs which students may join. These include international clubs, religious groups, political clubs, fraternities, communications (Radio McGill) and some 50 miscellaneous groups (such as science clubs, literary, theatrical and musical societies, chess and bridge clubs, and the Voyageurs' Society).

ATHLETICS

McGill's facilities for athletics, physical education, and recreation are centred in the Sir Arthur Currie Memorial Gymnasium, the Percival Molson Memorial Stadium and the McGill Winter Stadium. Sports facilities in the gymnasium include basketball, squash, badminton, and volleyball courts; swimming pool; facilities for gymnastics, wrestling, fencing, judo, and track. For the use of all women students of the University, staff and graduates, the Garfield Weston Swimming Pool at Royal Victoria College is available.

The physical education programs for men and women provide instruction for students in various sports.

Numerous intramural and recreational sports clubs provide opportunities for students to participate in sports for relaxation and to represent their faculty, or residence on intramural teams of their choice.

On the intercollegiate level McGill participates in sports sponsored by the Quebec Universities Athletics Association and the Ontario Women's Intercollegiate Athletics Association.

For a complete description of the McGill athletics facilities and intercollegiate, intramural, and recreational sports programs, see the Student Handbook.

OTHER SERVICES

Bus and Train Passes

Students, after having registered, may obtain an application form for reduced rates on buses and trains from the Registrar's Office.

Lockers

Certain buildings have locker facilities available to students. To obtain a locker, students should apply to the building porter and present their I.D. cards.

5 REGISTRATION AND ENROLMENT

GENERAL INFORMATION

Registration takes place early in September and lectures begin shortly thereafter. Complete information for the use of accepted candidates is sent with the letter of admission.

Incoming students in programs requiring 96 or fewer credits who have made their choice as to area of study may proceed directly to the appropriate Academic Adviser for completion of a Study Plan Form. Such students must bring to this interview their letter of acceptance, a copy of the transcript of their previous studies and should have read carefully the relevant parts of this Announcement as well as departmental supplements available from departmental offices. In planning the choice of elective or optional courses, students should check that there are no timetable conflicts.

Students who have not decided on their area of study or who are seeking additional advice should first consult a counsellor in the Student Affairs Office, Dawson Hall, for guidance.

Students admitted to a 97 to 120 credit program or to second year CEGEP (college equivalent) will, in most cases, be assigned to an adviser in the Office of the Associate Dean. Such students should consult Mrs. L. Willis, Room 109, Dawson Hall (telephone 392-5084).

To obtain an Academic Adviser in either the Arts programs or the Science programs, see page 34.

LATE REGISTRATION

There will be a period of registration for those unable to register at the stipulated time. (See Calendar of Dates, page 3.) There will be a late registration fee of $25.00.

PERSONAL INFORMATION

It is important that every student keep his official record up to date.

Any change in name (e.g. marital status), home address and telephone number, Montreal address and telephone number should be reported to the Office of the Associate Dean, Dawson Hall.

TIMETABLE

An official lecture timetable is available before and at registration. A preliminary version of the timetable (omitting lecture locations) is available in early June.

WITHDRAWAL FROM THE UNIVERSITY

A student who wishes to leave the University during the academic year must formally withdraw. Details may be found on page 40 on Faculty Regulations.

CHANGE OF COURSE

Refer to section on Faculty Regulations, page 36.

CHANGE OF SECTION

Refer to section on Faculty Regulations, page 36.

WITHDRAWAL FROM A COURSE

Refer to section on Faculty Regulations, page 36.

CONFIRMATION OF PROGRAM

Each student is responsible for his or her registration in the proper courses and programs. A computer print-out will be sent to every student soon after the change of course period in January and it is the student's responsibility to check it for errors and return it, signed, to the Office of the Associate Dean, Dawson Hall. Students who expect to graduate at the end of the academic year should so indicate on this verification form.



6 COURSE NUMBERING SYSTEM

Courses are given a 7 place designation. The first three digits specify the department by a numerical code (see table below), the next three symbols form the course number proper, and the final letter indicates the term or terms during which the course is offered, according to the following scheme:

A — First term
B — Second term
D — Full session
C — Summer session
F — Field course

To illustrate: 189-231A designates Mathematics (189) course 231 given in the First term; 180-E22A, B denotes Chemistry (180) course E22 given in either the First or Second terms; 204-200D designates Psychology (204) course 200 given over the full session.

Note: The level of a course is generally indicated by the fourth character:

E — College Equivalent
1 — College Equivalent or prerequisite courses (Science)
2,3,4, — University levels 1, 2, 3 respectively

DEPARTMENTAL CODES

101 — History
104 — Linguistics
107 — Philosophy
114 — Classics
117 — East Asian Studies
120 — English
123 — Art History
126 — French
127 — French as a Second Language
129 — German
132 — Italian
135 — Jewish Studies Program
141 — Russian
144 — Spanish
151 — Anthropology
154 — Economics, Industrial Relations
157 — Centre d'Etudes Canadiennes-Françaises
160 — Political Science
166 — Sociology
177 — Biology
180 — Chemistry
183 — Geography
186 — Geological Sciences
189 — Mathematics
195 — Meteorology
198 — Physics
204 — Psychology
214, 243 — Music
260 — Religious Studies
279 — Management
308 — Computer Science
397 — Islamic Studies
407 — Social Work
504 — Anatomy
507 — Biochemistry
528 — Microbiology and Immunology
549 — Pharmacology
552 — Physiology



7 FACULTY REGULATIONS

GENERAL INFORMATION

ARTS

The Faculty of Arts offers Major and Honours programs in a wide range of fields as well as a series of interdisciplinary majors. In cooperation with the Faculty of Science, B.A. Faculty Programs are also offered in three areas. (See page 55.)

In a Major at least three-fifths of the course load is specified within the area of concentration and the student may select his remaining elective courses from the offerings of the Faculties of Arts and of Science. Special permission is required for a student who wishes to choose an elective from another Faculty, *i.e.* Education, Management, etc.

Honours programs involve a high degree of specialization, and require the student to satisfy specific departmental Honours requirements while maintaining a good academic standing. Joint Honours programs are available in many related disciplines. Consult departmental listings.

SCIENCE

Three types of study plans are available: Faculty Programs, Major Programs and Honours Programs.

A Faculty Program is an approved coherent selection of courses giving the student a useful concentration in a recognized area. Three-fifths of the student's course load in a Faculty Program is specified, the remaining courses being freely elected from those offered in the Faculties of Science and of Arts. A student may thus choose a pattern of study within a Faculty Program which can range from one yielding a broad education to one specializing in particular interests.

Major Programs are more specialized than Faculty Programs, and are usually centred around a specific discipline or department. Between three-fifths and four-fifths of the course load is specified in the program and the student is free to elect the remaining courses from the offerings of the Faculties of Science and of Arts. Special permission is required for a student who wishes to choose an elective from another Faculty, *i.e.* Education, Management, etc.

Honours Programs require the student to maintain academic performance at a high standard in addition to involving a very high degree of specialization.

LANGUAGE POLICY

The normal language of instruction at McGill is English. Students may if they wish write term papers and examinations in French, but reasonable competence in English is essential to success at the University. It is recommended that students who lack fluency in English take a course in English as a second language at McGill's Summer School or elsewhere before embarking on a university program of studies.

There are no language requirements in either faculty. English-speaking Quebec students are encouraged to develop proficiency in French.

ACADEMIC ADVISERS

It is essential that each student consult with an adviser and complete a study plan form before registration.

1. Department Academic Advisers
   Each department has appointed advisers who will meet with students and approve their programs by signing the study plan form in Honours, Major and Faculty programs. (See the departmental listings for their names and/or locations.)
2. General Counsellors
   Students who are undecided as to their program or who may wish to change programs should seek advice at the office of the Associate Dean or a department in their general area of interest. General program and course information is available at Dawson Hall; the student will subsequently be referred to a departmental academic adviser for approval of his program. See also "Counselling in the Faculties of Arts and of Science", page 20.
3. New Students
   A student admitted to a university program requiring 96 or fewer credits must consult a departmental academic adviser and must present his transcript and letter of admission to facilitate program planning. See also "Counselling for New Students", page 19.

   A student admitted to second year CEGEP (college equivalent) or to a university program requiring 97-120 credits must consult Mrs. L. Willis, Room 109, Dawson Hall (telephone 392-5084) to obtain an adviser to plan his program. An orientation session is available for new students which includes group meetings, campus and library tours and a social hour for informal meetings with members of staff. See also "Counselling for New Students", page 19.

STUDENT CATEGORIES AND COURSE LOADS

Full-Time Students

Full-time students in Satisfactory standing take between 12 and 17 credits per term. A load of up to 19 credits per term is permitted students whose GPA is above 3.0.

Full-time students in Probationary standing take between 10 an 12 credits per term, and may add to this load a repeated course in which a grade of "D" was originally obtained.

Part-Time Students

Part-time students carry fewer than 12 credits per term (fewer than 10 credits per term for students in Probationary standing). New students apply through the Admissions Office and the applicant must have the qualifications to enter a full-time program. Full-time students who wish to become part-time must consult the Office of the Associate Dean, Dawson Hall. Certain programs must be completed within a specified number of years; such information is available from the Departments concerned and from the Associate Deans.

Special Students

A special student takes regular credit courses, but is not working towards a degree. To qualify for this status a student must hold an undergraduate degree and have a specific approved plan of study. Applications must be made at the Office of the Associate Dean, Dawson Hall.

Visiting Students

A visiting student is one who is taking courses at McGill for credit at another university. Applications must be made at the Office of the Associate Dean, Dawson Hall.

DEGREE REQUIREMENTS

Holders of a Quebec Diploma of Collegial Studies must complete a total of 90 credits (*i.e.* have passed courses whose total credit value is 90) to be eligible for a degree, must have passed satisfactorily all courses required by their program, and have a CGPA at McGill of at least 2.0.

Out-of-Province students will have the number of transfer credits allowed and the number of credits required for their program indicated on their acceptance letter. To be eligible for a degree, they must pass satisfactorily all courses required by their program, and have a CGPA at McGill of at least 2.0.

Departments may recommend to Faculty that a student be awarded Honours or First Class Honours under the following conditions: that the student complete all requirements imposed by the department, and that the GPA or CGPA at graduation be 2.8 to 3.49 for Honours and 3.5 or better for First Class Honours.

Students in a Major or Faculty program who graduate with a CGPA of 3.5 or better will be awarded their degrees with "Great Distinction"; those with a CGPA between 3.3 and 3.49 will receive their degrees with "Distinction".

ACADEMIC STANDING

Satisfactory Standing

A student enters the University in satisfactory standing and remains in this standing unless his GPA for any year drops below 2.0.

Probationary Standing

A student whose GPA drops to between 1.5 and 1.99 (1.2 and 1.99 for his entering year) is placed in probationary standing.

A student in satisfactory or probationary standing who has failed to obtain a satisfactory grade in a course required by his program may be conditioned in that course. He will then be required either to pass the supplemental examination in the course (if available) or to repeat the course. If the course is taken as an option in his program, he may choose to replace it with another option.

Unsatisfactory Standing

A GPA of less than 1.5 (1.2 in the entering year) places a student in unsatisfactory standing.

A student in probationary standing must return to satisfactory standing within one year by obtaining a GPA of 2.5 or CGPA of 2.0, otherwise he will be placed in unsatisfactory standing.

Students in unsatisfactory standing must withdraw from the Faculty. They may be readmitted after appealing to the Committee on Student Standing and subsequently considered in probationary standing. A student in unsatisfactory standing for the second time will be required to withdraw permanently.

Honours

Faculty awards Honours at graduation on the recommendation of the Department concerned. Faculty guidelines for a registered Honours student are:

First Class Honours: CGPA of 3.5 or higher
Honours: CGPA of 2.8 to 3.49

To be registered in an Honours program after his or her first year, a student must have attained a GPA and CGPA of 2.8 or better in the previous year, unless the student has special permission from his Department and the Associate Dean. Departments may impose additional Honours requirements. These, where applicable, will be found with the departmental Honours program descriptions.

ACADEMIC DEFINITIONS

Option: A course or sequence of courses chosen from a number of listed courses or sequences of courses within a program.

Prerequisite: Course A is prerequisite to course B if a satisfactory pass in course A is required for admission to course B.

Corequisite Course: The course a student must take prior to or concurrently with more advanced or other courses in that subject. Some courses require corequisites from other departments.

Elective: Any course offered by the Faculties of Arts and of Science for which the student is eligible, *(i.e.* has the necessary prerequisites, if any). Courses from other faculties may be taken only with the permission of the Associate Dean.

Paired Courses: Two one-term courses where no mark is given for the first term course (an exception being made when the student drops the course at mid-year). At the end of the second term, both term marks are averaged and the average mark is given for each course.

Linked Courses: Two one-term courses where no credit will be given for either course unless the other is taken. The marks will not be averaged.

CHANGE OF COURSE

Students who wish to change the courses for which they are registered within the change of course period must apply to the Associate Dean. Permission may be granted provided that such changes do not involve conflicts in timetable nor destroy the required sequence of courses. Course cards must be obtained from the office of the Associate Dean. All changes must be approved by the instructor of any course added and by the Honours, Major or Faculty Program adviser.

Deadlines	A course (first term course)	D course	B course (second term course)
1. Change or drop course(s); no fee; dropped course(s) will not appear on transcript.	October 4 to October 12 1973	October 4 to October 12 1973	January 28 to February 4 1974
2. Late change of course, $5 fee; dropped course will not appear on transcript.	October 19 1973	October 19 1973	February 11 1974
3. Withdrawal from a course after change of course deadline, only with permission of Associate Dean for exceptional circumstances, W will be indicated on transcript but will not be counted in the GPA.	October 26 1973	November 30 1973	February 22 1974

NOTE: Withdrawal from a course after the deadline in #3 above; "W" or "WF" as appropriate will appear on the transcript. Approval will be granted only in exceptional circumstances. The GPA will not include the "W" or "WF".

CHANGE OF SECTION

Many courses with large enrolments are given in several sections at different times. For any change of section within the same course, the department concerned should be consulted. Such changes need not be reported to the Associate Dean's office.

CREDIT SYSTEM

All courses carry a credit rating. Generally a three-hour one-term course carries 3 credits.

Courses are graded either by letter grades or in percent, with the following correspondences: A (80-100%), B (65-79%), C (55-64%), D (45-54%), F (0-44%). Grades A, B, C are termed satisfactory passes, D a conditional pass and F a failure. Certain courses have been approved for Pass/Fail (P/F) grading.

Although the grade of D is a passing grade, a grade of C or higher "Satisfactory Pass" is required in all courses specified as requirements for an Honours, Major or Faculty Program. Moreover, no student may register for a course for which he has not passed all the prerequisite courses with a grade of C or better, except by written permission of the department concerned.

Numerical equivalents of 4, 3, 2, 1, 0 are attached to the grades of A, B, C, D, F respectively. The earned grade point for each course is calculated by multiplying the credit rating of the course by the numerical equivalent of the letter grade earned. Standing will be determined on the basis of a grade point average (GPA) computed by dividing the sum of the grade points accumulated during the year by the total course credits attempted.

The cumulative grade point average (CGPA) will be the grade point average calculated using the student's entire record in the program. A failed course will continue to be used in the calculation of the CGPA even after the course is repeated and passed, or if a supplemental examination is taken.

Example: A student has taken the following courses and receives the indicated grades:

		Credits	*Mark*	*Grade*	*Grade Point*
Art History	123-315D	6		B	18
Chemistry	180-212A	4	62%	C	8
English	120-317A	3		A	12
Geography	183-315B	3	50%	D	3
History	101-321B	3		F	0
Philosophy	107-420D	6		A	24
Psychology	204-210D	6	78%	B	18
		31			83

$$\text{GPA} = \frac{83}{31} = 2.68$$

ATTENDANCE AND TERM WORK

No student will be permitted to write an examination in any course unless he has fulfilled the requirements of the course to the satisfaction of the instructor and the Associate Dean.

It is the responsibility of each student to make sure at the time of registration that there is no conflict in the timetable of the courses which he proposes to follow.

No student may register for two courses given at the same time without written permission from the Associate Dean and the instructors involved.

Students may be required to attend lectures regularly if Faculty so rules. Excuses for absences are dealt with only by the Office of the Associate Dean. A medical certificate should be presented at the Office of the Associate Dean immediately after a student's return to normal attendance.

An instructor may deny entrance if a student is late.

EXAMINATIONS

Students may write examinations or term papers in English or French, except in the case of certain language and literature courses.

INTERIM TESTS

Members of the teaching staff may from time to time give interim tests if they think them necessary.

FINAL EXAMINATIONS

Final examinations in one-term courses are held at the end of the term in which the courses are given. Final examinations in courses continuing in both terms are held at the end of the session i.e. April-May. In some courses there is no final examination; standing in these courses is determined on the basis of term work and class tests.

Instructors are not permitted to grant any special treatment regarding examinations to any student. If a student believes there is some circumstance which might be legitimately taken into account in evaluating his performance, he should apply to the Associate Dean.

SUPPLEMENTAL EXAMINATIONS

There is a supplemental examination period during the month of August. A student may receive permission to write supplemental examinations, if available, in courses in which he obtained a D or an F. His supplemental result will not erase the D or F originally obtained which will be used in calculating his GPA. Both the original mark and the supplemental result will be calculated in the CGPA. (i.e. the taking of supplemental examination has the same effect on a student's GPA as does repeating the course). He should avail himself of this privilege at the time of the next supplemental examination period. Written application to write a supplemental examination must be received at the Associate Dean's Office before July 2. A fee of $10.00 for each supplemental paper is payable to the Cashier as soon as the application has been approved.

In certain cases, a student may be permitted to write one supplemental examination during the April-May examination period in a first term course in which he has obtained a D or an F, if the course is also given in the second term. No attempt is made to avoid conflict between this supplemental and the student's required final examinations, and in the case of such a timetable conflict the student will be required to write the final examination and postpone the supplemental to the August period.

DEFERRED EXAMINATIONS

A student who, for reasons such as illness or family affliction, verified and accepted by the Associate Dean's Office, has been unable to write one or more sessional examinations, may receive permission to write supplemental examinations in their stead. The Associate Dean's Office must be informed within one week of the examination of the reasons for absences. An "L" will appear on the Report of Standing in place of a grade in such courses, followed by the grade obtained in the deferred examination after it has been written.

REASSESSMENT OF A GRADE

We have considerable confidence in the grades reported. If a student wishes his marks checked or his examination paper re-read, he must apply in writing to the Office of the Associate Dean. There is a fee of ten dollars which will be refunded if an error is found in the student's favour. If the result is a lower mark, the lower mark will stand and there will be no refund. Requests for Reassessment of standing in more than one course will not be permitted.

Any request to have a term paper reassessed must be made directly to the professor concerned.

CREDIT BY EXAMINATION

In certain cases a student may apply to write examinations in a course for which he has not registered (this is possible only in those courses where there is no other assessment except the final examination). Approval will be given in cases where the student has a good academic record.

SPECIAL FACILITIES

Students with visual or other disabilities should consult the Student Affairs Office about the possibility of special examination facilities.

INCOMPLETE COURSES

If, in the instructor's opinion, there is sufficient reason to permit a delay in the submission of required term work, an extension of deadline of up to four months after the end of the course may be granted the student. In this case, his Report of Standing will show a grade of "K" (incomplete); if a new grade is submitted within the deadline by the instructor, this will appear on the student's transcript following the "K". Otherwise, when the deadline has passed, the grade of "KF" (failed — has the same effect on GPA as an "F") will follow the grade of "K".

In exceptional circumstances, and with the approval of the Associate Dean, the four month extension of deadline may be extended further.

A student who has not, without adequate excuse, participated in a course for which he has registered or has not written the final examination may be given a grade of "J" (absent). In the calculation of the GPA, this is treated as an "F".

TRANSFER CREDITS

In certain cases, credit may be granted by the Faculty for courses taken at other Universities.

Permission of the Associate Dean and the department concerned is necessary.

ACADEMIC CREDIT TRANSFER AGREEMENT

Regular undergraduate students registered at McGill may, with the written permission of the Associate Dean of their Faculty, register for up to 40% of a full course load in each academic year at any university in the province of Quebec. These courses, weighted, graded, and successfully completed according to the standards of the university giving the courses, will be fully recognized by McGill for the purpose of the degree for which the student is registered.

This privilege will not be granted automatically; the courses should form a required part of the student's program and be unavailable at McGill.

Students wishing to take advantage of this agreement should consult their Associate Dean for details, and are informed that this agreement is subject to the following conditions:

1) that the other universities concerned may, at their discretion, refuse the registration of a student for any of its courses or program;
2) that the obligation of the student to follow the curriculum laid down by McGill is not affected;
3) that the student is responsible for ensuring his timetable at McGill permits him to take courses at any of the universities concerned;
4) that the universites concerned are not responsible for special arrangements in cases of examination timetable conflicts.

Students may take advantage of this agreement by completing the TRANSFER CREDIT form available from the Registrar's Office. This form permits the student to collect the required academic authorizations and that of the Director of Finance; ensures automatic fee transferral from the home university to the host university; and ensures the automatic reporting of marks and credits to the home university.

NOTE: Transfer credits are not calculated in the GPA or CGPA and the grades are not entered on the student's McGill transcript.

YEAR AWAY

In special circumstances, permission may be granted a student to take an approved program for a term or year at another university.

WITHDRAWAL FROM THE UNIVERSITY

The onus for initiating withdrawals rests solely with the student. Neither notification of the course instructors nor discontinuance of class attendance will suffice. A student who wishes to leave the University during the academic year must secure permission from the Office of the Associate Dean. The appropriate form will be supplied. A student considering withdrawal is strongly urged to consult his Academic Adviser before making a final decision. Fees for the term in which the student withdraws are not refundable except under special circumstances.

READMISSION

A student who has withdrawn from his Faculty or who has not re-registered for a term or more must make application in writing to the Associate Dean (not to the Admissions Office) to be readmitted, stating the reasons for his absence from the University and giving a summary of his activities during that period.

Students who withdrew because of illness should provide some indication that they are ready to resume studies.

SUMMER SESSIONS – 1973

The McGill University Summer Session allows students to take regular credit courses. The 1973 Summer Session will consist of two parts. The Pre-Summer Session will be held from May 16 to June 27; the Summer Session from July 3 to August 10.

The Summer Sessions are designed to meet the needs of various categories of participants including: incoming students wishing to take courses prerequisite to particular programs; students who wish to accelerate their studies; students from other universities who wish to transfer McGill credits to their own institutions; students who wish to obtain higher qualifications; students required to repeat courses failed during the winter session; students who wish to enrich their education.

Admission to the Summer Session programs does not guarantee that students will be admitted to the regular winter programs.

Students wishing to apply to the Pre-Summer Session must do so before April 2; the deadline for the Summer Session is May 15.

Full information concerning course offerings, applications and requirements may be obtained from:

Miss Jeanne G. Marsolais
Assistant Director
McGill University Summer Sessions
P.O. Box 6070
Montreal 101, Quebec

TRANSCRIPT OF ACADEMIC RECORD

Certified transcript(s) of a student's academic record may be obtained by applying to the Registrar's Office, F. Cyril James Building.

All courses taken at McGill and all results obtained appear on the transcript.

The following is an explanation of the codes used:

K — incomplete; see section on incomplete courses, page 39.

KF — failed to meet the extended deadline for submission of work in a course; counts as a failure in the GPA.

J — absent; the student is registered for a course but does not write the examination or do other required work. The J will be calculated as a failure in the GPA and CGPA.

W — withdrew; a course dropped, with special permission, after the change of course period; see Change of Course, page 36. Does not enter into the GPA calculation.

WF — withdrew failing; a course dropped, with special permission, the student's work at that stage being on the level of an F, see Change of Course, page 36. Does not enter into the GPA calculation.

L — Deferred; see Deferred Examinations, page 38.

A, B, C — satisfactory pass

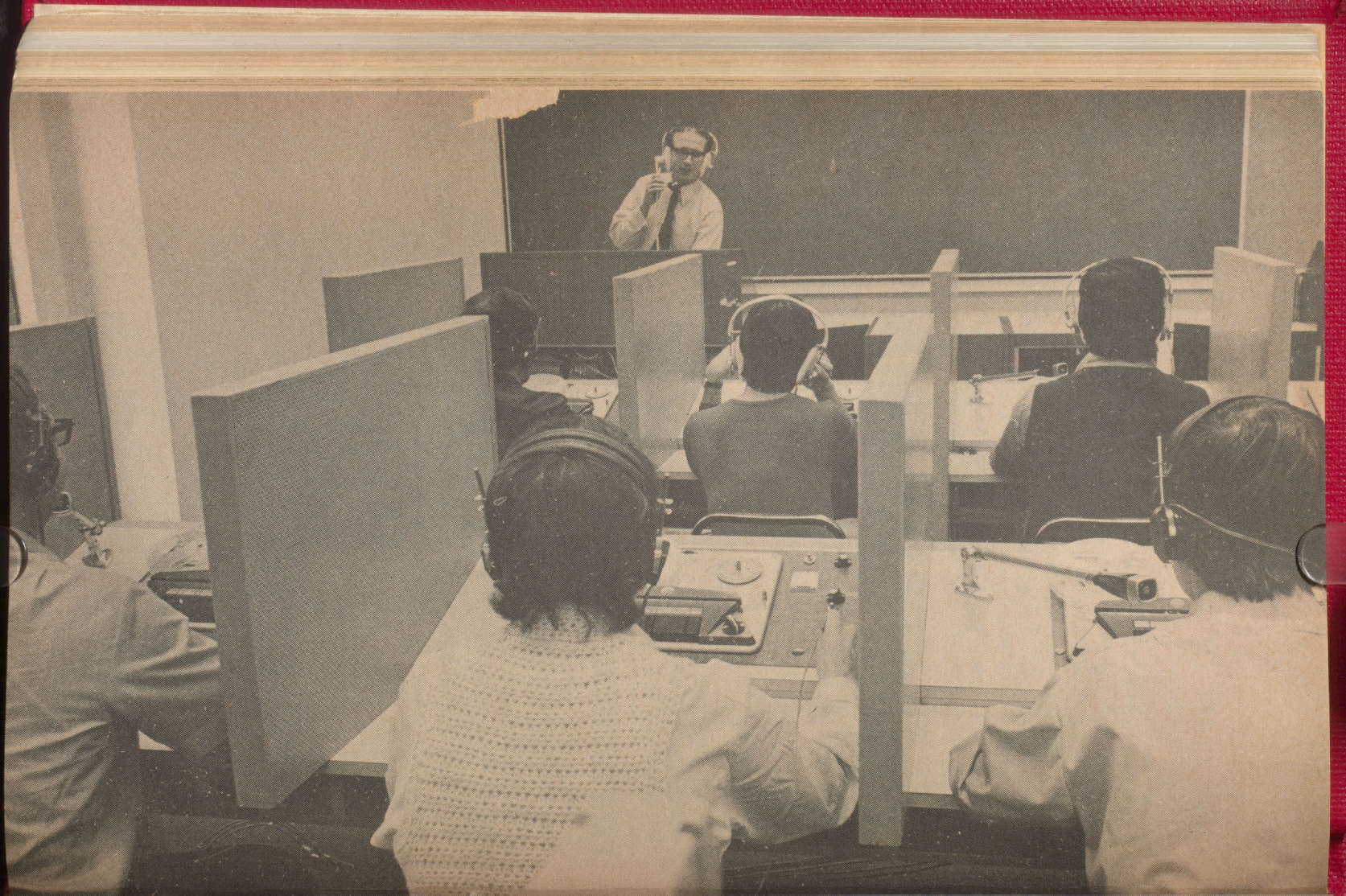
D — conditional pass

F — failure

See Credit System, page 37.

PROFESSIONAL STUDIES

Students intending to proceed into Dentistry, Divinity, Education, Law or Medicine should consult the Faculties concerned about their prerequisites for admission. Students proceeding into graduate professional studies should note that admission is not automatic and that application forms must be submitted in advance of the prescribed dates. Requirements needed for admission to the Graduate School of Library Science or the School of Social Work may be obtained from these schools.



8 COLLEGE EQUIVALENT PROGRAMS

(In 1973-74, McGill will offer only the Second year of these programs.)

INTRODUCTION

Formerly, in the English-language sector, students could proceed directly from high school (after completion of Grade XI) to university, where most first degrees could be obtained in a period of four years. The system now provides for a new level of education following high school, the collegial level. Each college is an independent public corporation separate from both school boards and universities. Such Colleges of General and Vocational Education, frequently called CEGEPs after the initials of the French name, Collège d'Enseignement Général et Professionnel, offer instruction both for students planning to go on to university (a two-year program) and for those taking a technological course (two- and three-year programs) leading directly to employment. Most first degree programs at the universities normally require three years for CEGEP graduates.

This plan has been implemented quite extensively in the French-language sector, and came into force in the fall of 1969 in the English sector. Until a complete network of English-language Colleges is in operation, provision must be made for the large number of high school graduates who plan to go on to university, but who cannot be accommodated in CEGEPs.

In response to this need, the English-language universities of the province and Loyola College have been offering college equivalent programs. These programs differ from those of CEGEPs in two important ways. First, only pre-university courses are offered — the universities have neither the facilities nor the experience to offer vocational or technological training. Second, the programs offered at each university are designed by it. They differ in detail from those offered at CEGEPs, and differ somewhat between universities. Nevertheless the intention is that these programs be equivalent to the "general" or academic program of a CEGEP so that students completing two collegial years at McGill will be at essentially the same stage in their education as those completing the academic program at CEGEPs.

The two years of the college equivalent program are designated as E1 and E2; in 1973-74 only E2 is being offered.

LANGUAGE POLICY

The normal language of instruction at McGill is English. Students may if they wish write term papers and examinations in French, but reasonable competence in English is essential to success in the college equivalent and university programs. A summer course, English 120-E15C is offered, and it is recommended that students who lack fluency in English take this summer course *before* embarking on a program of collegial studies.

It is clear that English-speaking students from Quebec should acquire a working knowledge of the French language. This will ultimately be entirely the responsibility of schools and CEGEPs but, during the transition period, while McGill is still offering college equivalent programs, it is considered that McGill has a responsibility to support this principle.

Every student who entered E1 from English-language High Schools in the Province of Quebec was classified on the basis of his mark in Oral French on the high school leaving examinations. Students with a mark of 80% or more were considered to have

displayed competence in French and need enrol in no further course. Students whose mark is less than 75% were required to enrol in at least a three credit course (see below for definition) in Oral and Written French in their first year. Students in the 75% to 80% bracket may elect to study French privately or to enrol in a course in either French language or French literature. In any event, all Quebec students with less than 80% on the high school leaving examination in Oral French were required to pass an oral test in French before the end of their First year at McGill. Students who failed this test must enrol in a three or six credit course in Oral and Written French in Second year.

GRADING AND PROMOTION

Requirements are stated in terms of credits. A 6-credit course typically has three lectures per week and ancillary laboratory or conference periods (if applicable) and lasts for the full academic year; a 3-credit course has a similar number of instructional periods per week but lasts for one term only.

The course numbers of courses offered in the first term are given the suffix "A", those given in the second term the suffix "B", and courses running through both terms the suffix "D". The normal course load is 15 credits per term or 30 credits for the academic year.

i) Courses are graded A (80-100%), B (65-79%), C (55-64%), D (45-54%) or F (failure — below 45%). Grades A, B and C will be classed as satisfactory; grade D is passing but such a grade in a course will not permit entry into a subsequent course for which it is a prerequisite.

ii) Successful completion of a college equivalent program will be achieved by passing in courses totalling 60 credits (including all required ones) with satisfactory standing in courses totalling at least 48 credits.

iii) The normal course load per year is 30 credits. *At the end of the First year* a student with satisfactory grades in courses totalling fewer than 12 credits will be required to withdraw. A student with satisfactory grades in 12 credits will be permitted to write supplemental examinations worth 6 credits to remove a failure from his record or to improve his standing in a course in which he needs a grade higher than D. Approved summer courses, if available, may replace the supplemental examinations.

iv) No student will be permitted to repeat a course in which he received a satisfactory grade.

v) *At the end of the Second year* a student with satisfactory grades in courses totalling fewer than 30 credits will be required to withdraw. No supplemental examinations will be allowed.

vi) A student with satisfactory grades in 30 or more credits at the end of Second year will be allowed to repeat one or both terms of Second year, if by so doing it is possible for him to complete a college equivalent program. Such a student will not be required to pass more courses than are needed to complete his program, so that he may be a limited student. He will be considered to be in the E2 year.

vii) In determining the grade assigned for a course instructors are encouraged to attach considerable weight to regular evaluations during the progress of the course, such as class tests, laboratory results, term papers, etc.

viii) Many of the offerings at the collegial level are given for one term only. An isolated 3-credit course presents no problem but related pairs of such courses given in one year, in which the first is prerequisite to the second, give rise to difficulties because of the McGill calendar, in which second-term lectures commence immediately on the completion of first-term examinations. Such paired courses are designated by the department (or departments) involved. Students taking only the first course of a pair will be graded normally, but for students registered in both, the examination at the end

of the first term will be treated as a class test and a single final grade for both courses will be established at the end of the year.

ix) Students in E2 will be permitted to enrol in courses totalling 36 credits if they have obtained a Grade Point Average of at least 3.0 in E1.

x) In some cases students may have passed in high school a subject course offered in E1. This will apply in particular to introductory language courses. Such students may be admitted with advanced standing in this subject. This will not reduce the total number of courses required in (ii) above, but will in some instances permit the completion of a language requirement by passing one college equivalent course rather than two, thereby allowing greater flexibility in course selection.

PROGRAMS AND COURSES

The Faculties of Arts and of Science have three different college equivalent programs: Arts, Physical Sciences, and Biological Sciences. These programs have different required courses, but *it is possible to satisfy the requirements of all three, by a suitable choice of options, leaving the student free to choose any degree programs he wishes on completion of the first two years.* The programs offered here also satisfy the college requirements for the degree programs offered by most other Faculties; for details of these requirements, see the appropriate section in the *General Announcement.*

Students should enrol in the program leading to the degree they think they are most likely to choose at the end of the Second year. Students who are in doubt about their eventual direction should be careful to include the minimum requirements of alternative programs among their options. Students planning to apply for admission to the Faculties of Medicine or Dentistry, before or after completing a bachelor's degree, should follow the Biological Science Program in the college equivalent years.

In choosing options within any college equivalent program the student is advised to include courses in any subject he might wish to concentrate on in the University program to follow, so that he will have a valid basis for making a choice at the end of Second year. Students proposing to study one or more languages at University level should normally begin the study of these languages in the college equivalent years. Students considering the study of any of the social sciences in the B.A. program at McGill University are strongly advised to include at least 6 credits in mathematics.

Course requirements for the full two years of the college equivalent programs are given in the tables below. The order in which these courses are taken is not important — prerequisites excepted.

NOTE: No student may enrol in more than 12 credits in any one subject in any college equivalent year.

THE ARTS CURRICULUM

Credits required in the first two years of the Arts curriculum:

English	6 credits
French	6 credits*
Language	12 credits — other than English — in the same language**
Electives	36 credits

THE SCIENCE CURRICULUM

Credits required in the first two years of the Science programs:

	BIOLOGICAL SCIENCE	PHYSICAL SCIENCE
English	6 credits	6 credits
Arts	6 credits	6 credits
French	6 credits*	6 credits*

Mathematics	6 credits***	9 credits***
Physics	9 credits	9 credits***
Chemistry	10 credits***	6 credits***
Biology	6 credits	3 credits
Electives	12 credits	15 credits

*Students competent in French, and any others not required to enrol in French courses, will have an additional elective. Students whose native language is not English should consider taking English 120-E15C during the summer session.

**Students electing to satisfy the language requirement in Arts through the study of French need complete a total of only 12 credits in French — instead of 18 — at the collegial level. Such students thus will have an additional elective.

***Students who lack certain prerequisites will need additional courses in these subjects as described below and will have correspondingly fewer electives.

Mathematics: All science students with junior matriculation standing or its equivalent in trigonometry or functions must enrol in Mathematics 189-201A and 189-202B or equivalent courses. Physical Science students must, in addition, enrol in Mathematics 189-221A and are strongly advised to enrol in Mathematics 189-222B. Science students lacking high school trigonometry or functions must enrol in Mathematics 189-E11A, 189-201B and 189-202A (plus 189-221B for Physical Science students).

Physics: The required sequence of courses for Biological Science is Physics 198-E10A, 198-E11B, and 198-E20B. (The sequence 198-E14B, 198-E15A and 198-E21A may be substituted.) For Physical Science, the required sequence is Physics 198-E14B, 198-E15A, and 198-E21A. Physical Science students taking the Mathematics sequence 189-E11A, 189-E14B, 189-E15A, 189-E21B will take Physics 198-E21B rather than 198-E21A.

Students with satisfactory grades in Physics 198-E10A and 198-E11B may complete the Physics requirements for both the Physical Sciences and Biological Sciences sequences by taking Physics 198-E23A and 198-E21B in their E2 year in lieu of Physics 198-E20B. Students in E2 Biological Sciences who have credit for one semester in Physics but who do not have the prerequisites for Physics 198-E20B may remove this deficiency by taking Physics 198-E26A.

Chemistry: Science students with good standing in high school chemistry must enrol in Chemistry 180-E10B and 180-E20A. Biological Science students, in addition, enrol in 180-E22A,B.

Biology: Biological Science students must enrol in Biology 177-E10D. Physical Science students may select either Biology 177-E10D or Biology 177-E16B.

NOTE: Any specially qualified student may substitute a more advanced course in the same subject specified above. For further information see the appropriate subject entry in the following section.

COURSES OFFERED IN ARTS AND IN SCIENCE

The numbers of courses intended primarily for collegial level students are prefixed with an 'E'. These students may also enrol in courses numbered 200 to 299 where permission is granted by the Department. The following courses are available to all college equivalent students.

The number of a first-term half course has the suffix 'A', the number of second-term course has the suffix 'B' and courses extending over both terms have the suffix 'D'.

1973-74 COURSES AVAILABLE TO E2 STUDENTS

Students with advanced standing should consult the chairman of the department concerned for admission to more advanced courses.

ANTHROPOLOGY 151-E21A, -E22B, -205B, -206A, -209B, -228A

ARABIC 397-E10D, -E20D

ART HISTORY 123-200D†, -211A†, -212B†, -220A†, -221B†, -222D†, -223A†, -224B†

BIOLOGY 177-E10D, -013A, -014B, -E16B, -27A, 346A, 358A

CHEMISTRY 180-E20A, -E22A,B, -E23A, -24A,B, -E28B, -110A, -120B, -200B

CLASSICS See page 72.

COMPUTER SCIENCE 308-200A,B

EAST ASIAN STUDIES - CHINESE 117-E10D, -E11D, -E20D

ECONOMICS 154-E11D, -200D, -201D

ENGLISH 120-E10D, -E15D
For other courses available see page 85.

FRENCH 126-150A, -151D, -152D, -153A, -154B, -155D, -157D, -158A, -159B, -160A, -161B, -162A, -164A, -165B, -166D, -167D

FRENCH as a Second Language 127-201D, -211D, -221D

GEOGRAPHY 183-E10A, -E11D, -E12B, -201A, -202B, -203D, -214A, -215B, -216A, -217B, -271A, -272B

GEOLOGICAL SCIENCES See page 199.

GERMAN 129-201D, -202D, -203D, -004D, -210A, -211B, -212D, -251D, -252D, -253D, -254D, -260D, -261A, -262B

HISTORY See page 107.

ITALIAN 132-205D, -210D

JEWISH STUDIES —
Hebrew 135-220D, -320D
Yiddish 135-280D

LINGUISTICS 104-200A, -200B, -201D

MATHEMATICS 189-201A,B, -202A,B, -203A, -204B, -205A, -206B, -217A, -218B, -221A,B, -222A,B, -231A,B, -232A,B, -242A, -243B, -245A,B, -246-A,B

METEOROLOGY 195-210D

MUSIC 211-121D, 211-221D, 214-180D, 214-221D, 214-280D

PHILOSOPHY 107-200D, -210A, -211B, -212B

PHYSICS 198-E10A, -E11B, -E14B, -E15A, -E20A,B, -E21A,B, -E22A, -E23A, -E25B, -E26A, -E27B, -200A, -224B

POLITICAL SCIENCE See page 134.

PSYCHOLOGY 204-200D, -204A, -204B

RELIGIOUS STUDIES 260-E14D

RUSSIAN 141-210D, -212D, -215D, -220D, -222D, -225D, -226D, -227D

SOCIOLOGY 166-E21A, -E22B, -E23A

SPANISH 144-E11A,B, -E12A,B, -215A,B, -216A,B

URDU-HINDI 397E11D, -E21D

†Open only to E2 students who have obtained a 3.0 GPA in E1.

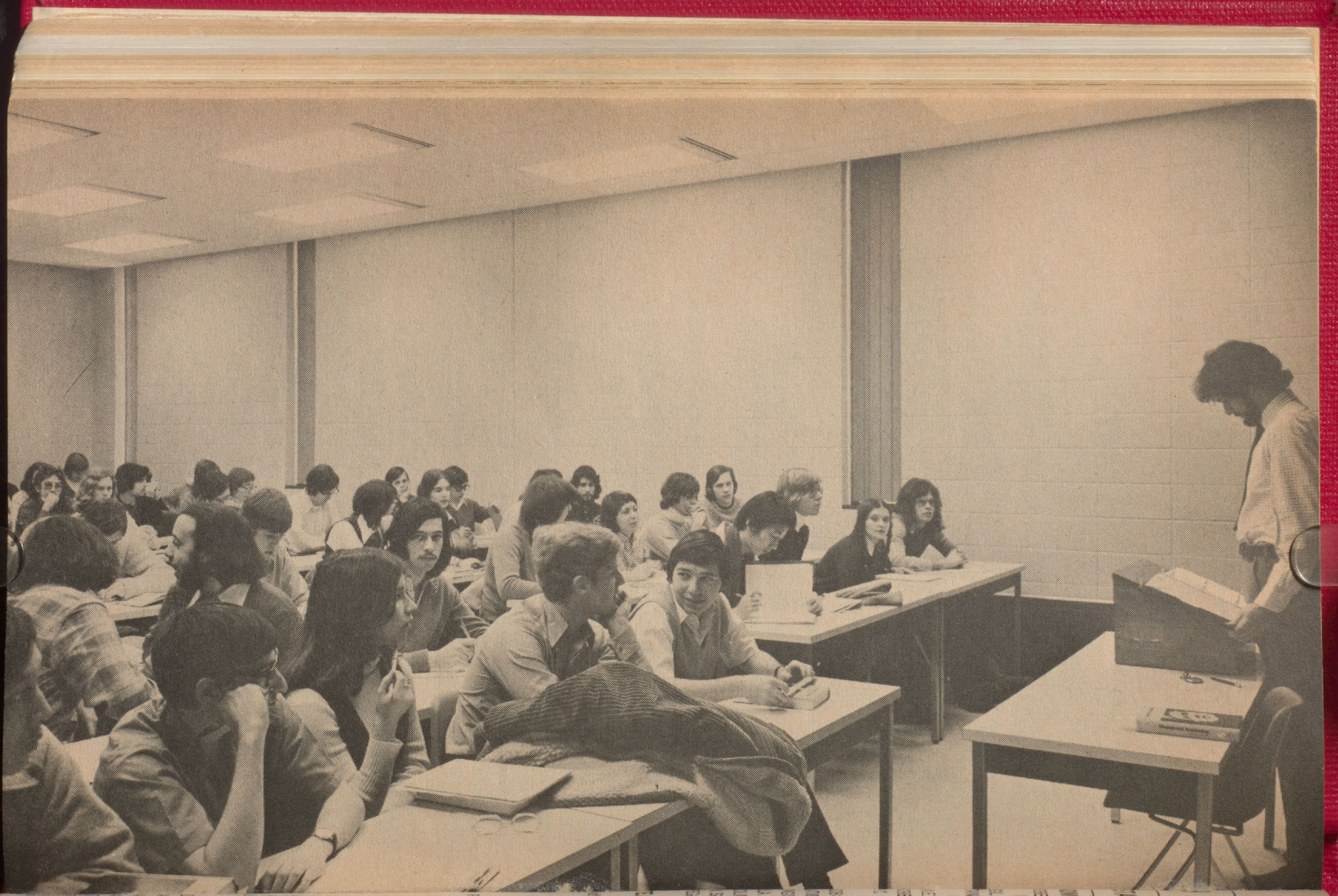
OTHER COURSES AVAILABLE TO COLLEGE EQUIVALENT STUDENTS

GRAPHICS I 305-E90A, B. (3 credits.) The basic aim of this course is to study and practise the principles involved in the representation of objects on paper. The course includes the following topics: scope of graphics, graphics in design, evolution in graphics, the concept of apparent and true shape, the principles of perspective, axonometric, oblique and orthographic projections and introduction to the conventions and standards in drawings.

MANAGEMENT 278-E20A. The Role of Business in Society. *(Given in the Faculty of Management.)*

MANAGEMENT 278-E21B. Management of organization and examination of the functional areas of business and their inter-relationship. *(Given in the Faculty of Management.)*

MATERIALS SCIENCE 306-E60A,B. (3 credits.) Historical significance, mechanical and physical behaviour, polymers and plastics, crystalline materials, phase diagrams, heat treatment, fabrication. (3 lectures, 2 hours problems, an elective course open to all collegial level students. *Given in the Faculty of Engineering.)*



9 FACULTY OF ARTS

STAFF

ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S.C., F.R.S. *Principal and Vice-Chancellor*

EIGIL PEDERSEN, B.A. (S.G.W.U.), M.A., Ed.D. (Harv.) *Vice-Principal (Academic)*

STANLEY B. FROST, B.D., M.Th. (London), Dr. Phil. (Marburg), D.D. (Vic., Tor.), D.Litt. (Mem.) *Vice-Principal (Administration and Professional Affairs)*

DALE C. THOMSON, B.A. (Alta.), Ph.D. (Paris) *Vice-Principal (Planning)*

ROBERT VOGEL, B.A. (Sir. G. Wms.), M.A., Ph.D. *Dean of the Faculty of Arts*

D. C. FRYE, B.A. (N.Y.U.), M.A. (N.Y.U.), Ph.D. (Wisc.) *Associate Dean of the Faculty of Arts*

ISOBEL OSWALD, B.A. *Assistant Secretary of the Faculty*

LATIF T. GHOBRIAL, B.A. (Monmouth), M.B.A. (Penn.) *Recorder*

ANGELINE LUCAS *Senior Adviser*

LILA WILLIS *Senior Adviser*

COLIN McDOUGALL, D.S.O., B.A. *Registrar*

M. SAEED MIRZA, B.Eng. (Karachi), M.Eng., Ph.D. *Dean of Students*

PEGGY SHEPPARD, B.Ed., B.A. (S.G.W.U.) *Director, Admissions Office*

TEACHING STAFF

African Studies Program

Advisers — P. C. W. GUTKIND, *Chairman,* African Studies Committee (Anthropology); D. R. ARONSON (Anthropology); M. DORSINVILLE (English); M. J. ECHENBERG (History); F. A. KUNZ (Political Science); J. G. SMITH (Economics); I. WALLERSTEIN (Sociology)

Anthropology

Professors — BRUCE G. TRIGGER, *Chairman;* PETER C. W. GUTKIND; RICHARD F. SALISBURY

Associate Professor — DAN R. ARONSON; PHILIP C. SALZMAN

Assistant Professors — BERNARD ARCAND; GEORGE GMELCH; FUMIKO IKAWA-SMITH; CARMEN LAMBERT; JEROME ROUSSEAU; PETER SINDELL

Art History

Professors — WINTHROP JUDKINS *(Chairman);* GEORGE GALAVARIS

Associate Professor — RIGAS BERTOS

Assistant Professors — ROSEMARIE BERGMANN; WILLIAM MITCHELL

Lecturer — ROBERT LANGSTADT

Centre for East Asian Studies

Director — P. T. K. LIN *(on leave 1973-74)*

Associate Director — S. J. NOUMOFF *(on leave 1973-74)*

Acting Director — C. S. BURCHILL

Acting Associate-Director — HSIEH PEI-CHIH

The Interdisciplinary Committee on East Asian Studies consists of faculty members in all relevant departments.

Centre d'Etudes Canadiennes-Françaises

Director — JEAN-LOUIS ROY

Committee — C. MILLER *(History)*; M. PINARD *(Sociology)*; A. SMITH *(French)*; M. STEIN *(Political Science)*; E. WADDELL *(Geography)*

Professors — A. BERNARD; E. CLOUTIER; L. DECHENE; M. DORSINVILLE; Y. LAMONDE; J. LANGUIRAND; D. LATOUCHE; C. MILLER; J.-L. ROY

Classics

Professors — A. SCHACHTER *(Chairman)*; COLIN D. GORDON; PAUL F. McCULLAGH *(Hiram Mills Professor of Classical Philology)*

Associate Professors — A. FARMAKIDES *(on leave)*; J. M. FOSSEY; P. VALERI TOMASZUK; P. VIVANTE *(on leave second term)*; G. M. WOLOCH

Assistant Professors — C. W. DEARDEN; M. J. SILVERTHORNE; G. L. SNIDER

Visiting Professor — P. M. A. ROESCH *(Institute Fernand-Courby, Lyon)*

East Asian Languages and Literatures

Associate Professor — P. T. K. LIN *(Chairman) (on leave 1973-74)*

Lecturers — J. CHANG; P. WANG

Economics

Professors — A. ASIMAKOPOULOS *(on leave 1973-74)*; E. F. BEACH; I. BRECHER *(on leave 1973-74)*; E. KIERANS; J. C. WELDON; H. R. C. WRIGHT

Associate Professors — P. BRIANT; A. DEUTSCH; A. FENICHEL *(on leave 1973-74)*; C. GREEN; J. A. GALBRAITH; J. HANDA *(on leave 1973-74)*; S. H. INGERMAN *(on leave 1973-74)*; D. KHAZZOOM; J. KURIEN; K. LEVITT; J. G. SMITH; T. VELK; A. VICAS *(on leave 1973-74)*

Assistant Professors — P. DAVENPORT; M. FRANKMAN *(on leave 1973-74)*; G. GRANTHAM; J. ITON; M. A. LOUFTI; M. F. LOUFTI; F. MARTIN; R. T. NAYLOR; L. SODERSTROM; B. WURZBURGER

Lecturer — H. ROMOFF

English

Professors — DONALD F. THEALL *(Chairman)*; PETER BUITENHUIS; LOUIS DUDEK; JOYCE HEMLOW; ALAN HEUSER; ALEC LUCAS *(on leave 1973-74)*; HUGH MacLENNAN; A. E. MALLOCH; HUGO McPHERSON

Associate Professors — M. BRISTOL; M. BRUCE; C. D. CECIL; D. COLE; D. C. FRYE; I. GOPNIK *(on leave 1973-74)*; SLAVA KLIMA; GEORGE MATHEWSON; P. H. OHLIN; PAUL H. PIEHLER *(on leave 1973-74)*; MARTIN PUHVEL *(on leave 1973-74)*; JOHN RIPLEY; D. SUVIN *(on leave 1973-74)*; B. F. WEEMS; W. WEES

Assistant Professors — H. S. ANDERSON *(on leave 1973-74)*; BHARATI BLAISE *(on leave 1973-74)*; DONALD F. BOUCHARD; A. CONWAY; M. DAVISON; M. DORSINVILLE; L. T. DUER; L. T. ELLIOTT; A. R. GODFREY; ALAN GOLDBERG; C. A. E. HEPPNER; LEANORE LIEBLEIN; YEHUDI LINDEMAN; RONALD REICHERTZ; BRIAN ROBINSON; J. RONSLEY; D. S. RUBIN; M. SIMON; R. TEMBECK; DAVID WILLIAMS *(Associate Chairman)*

Assistant to the Chairman — W. T. BOOTH

Lecturer — M. LAFON

Visiting Professor — ARNOLD ROCKMAN

French Language and Literature

Professors — J. ETHIER-BLAIS; G.-P. COLLET; J. L. LAUNAY; J. G. NICHOLSON *(Chairman)*

Associate Professors — M. ANGENOT; M. T. CARTWRIGHT; YVONNE CHAMPIGNEUL; G. DI STEFANO; J.-P. DUQUETTE; F. FURLAN; H. JONES; R. McGILLIVRAY;

J.-C. MORISOT; M. RABOTIN *(on leave 1973-74)*; D. W. STEEDMAN; J. TERRASSE; L. VAN DELFT; R. VIGNEAULT

Assistant Professors — J. P. BOUCHER; J.-C. LEMYZE; GABRIELLE PASCAL; G. POMET *(on leave 1973-74)*; F. RICARD; A. SMITH; A. TICHOUX

Sessional Assistant Professor — GISELE BARRET

Lecturers — ISIDA CREMONA; JEAN FLETCHER; A. JULIEN; A. MAUGEY; M.-THERESE REVERCHON; IRENE STAROSTA

French as a Second Language

Lecturers — J.-P. AUBERT; N. LeGALL; M.-N. LEGOUX; B. SHEPPARD *(Acting Director)*

Sessional Lecturers — H. MIGNAULT; R. LECLERCQ

German

Professor — A. ARNOLD *(Chairman)*

Visiting Professor — R. M. KULLY

Associate Professors — M. BIRCHER; V. R. BLOCK; T. GOLDSMITH-REBER *(on leave 1973-74)*; W. HEMPEL *(on leave)*; A. HSIA; H. J. MAITRE; J. SCHMIDT; I. SCHUSTER

Assistant Professors — E. GALLATI *(on leave 1973-74)*; E. LACH *(on leave 1973-74)*; H. RICHTER

History

Professors — C. C. BAYLEY; P. C. HOFFMANN; M. MLADENOVIC; H. SENIOR; R. VOGEL

Associate Professors — N. BAMBA; P. H. BOULLE; L. L. LaPIERRE *(on leave 1973-74)*; P. T. K. LIN *(on leave 1973-74)*; M. P. MAXWELL *(Chairman)*; A. R. RIGGS

Assistant Professors — J. N. CHARTERIS; L. DECHENE; M. J. ECHENBERG; J. W. HELLMAN; E. LAFFEY; C. MILLER; H. S. WEINROTH

Lecturers — H. C. SCHLIEPER; D. M. SWETSCHINSKI; J. H. THOMPSON

Visiting Associate Professor — C. S. BURCHILL

Industrial Relations Studies Program

Advisers — FRANCES BAIRSTOW *(Director)*; WILLIAM A. WESTLEY *(Director of Research)*

Italian Language and Literature

Professor — ANTONIO D'ANDREA *(Chairman)*

Visiting Professor — RICCARD SCRIVANO

Associate Professor — PAMELA D. STEWART

Assistant Professor — MICHELANGELO PICONE

Lecturer — COSTANZO DI GIROLAMO

Sessional Lecturer —CARMELA MINDEL

Jewish Studies Program

Professors — HARRY M. BRACKEN; RICHARD H. POPKIN *(Consultant)*

Associate Professor — GERALD J. BLIDSTEIN *(on leave 1973-74)*

Assistant Professors — EUGENE ORENSTEIN *(Chairman)*; WARREN HARVEY; LAWRENCE KAPLAN; YEHUDI LINDEMAN; RUTH WISSE

Lecturers — SHIMEON LEVI; DANIEL SWETSCHINSKI

Sessional Lecturers — C. GASCH; B. MUSZKATEL; L. TENCER

Linguistics

Professors — C. D. ELLIS *(Chairman)*; ANDRE A. RIGAULT

Associate Professors — R. M. WEBER; M. GOPNIK *(on leave 1973-74)*

Assistant Professors — D. W. LIGHTFOOT; G. L. PIGGOTT

North American Studies Program

Committee of Advisers — PETER BUITENHUIS *(Department of English);* ALEC LUCAS *(on leave 1973-74);* HUGO McPHERSON; JEAN-PIERRE DUQUETTE *(Department of French);* THOMAS VELK *(Department of Economics)* MICHAEL STEIN *(Department of Political Science, on leave 1973-74)*

Philosophy

Professors — HARRY M. BRACKEN; MARIO BUNGE; RAYMOND KLIBANSKY; ALASTAIR McKINNON; RICHARD H. POPKIN; CHARLES TAYLOR; J. A. TRENTMAN

Associate Professors — DAVID FATE NORTON; JONATHAN ROBINSON *(Chairman)*; JEREMY WALKER

Assistant Professors — HARRY A. BEATTY; GEORGE DIGIOVANNI; WARREN HARVEY; J. McGILVRAY; MICHAEL SCHLEIFER *(on leave 1973-74)*

Political Science

Professors — MICHAEL BRECHER *(on leave 1973-74)*; J. R. MALLORY; BALDEV RAJ NAYAR; CHARLES TAYLOR

Associate Professors — HAROLD M. WALLER *(Chairman)*; THOMAS BRUNEAU; FRANK A. KUNZ; PAUL C. NOBLE; JANICE STEIN *(on leave 1973-74)*; MICHAEL STEIN *(on leave 1973-74)*; BLEMA S. STEINBERG

Assistant Professors — BARBARA HASKEL; DANIEL LATOUCHE; ROBERT METCALFE; SAMUEL J. NOUMOFF *(on leave 1973-74)*; HAROLD SARF; JOHN SHINGLER; PAULINE VAILLANCOURT

Visiting Professors — ANDRE BERNARD; BERNARD BROWN; EDOUARD CLOUTIER

Lecturer — PAMELA BUTLER

Religious Studies

Professors — C. J. ADAMS; E. G. JAY; G. JOHNSTON; J. C. McLELLAND

Associate Professors — J. A. BOORMAN; R. C. CULLEY; J. C. KIRBY; M. PEASTON

Assistant Professors — D. R. RUNNALLS; R. W. STEVENSON

Russian and Slavic Studies

Professor — J. G. NICHOLSON *(Chairman)*

Visiting Professors — J.-Y. LE GUILLOU; R. V. PLETNEV

Assistant Professors — P. M. AUSTIN; LUDMILA BAUER; A. FODOR *(on leave 1973-74);* IRENE PAVILANIS

School of Social Work

Professors — MYER KATZ; D. E. WOODSWORTH *(Director)*

Associate Professors — PATRICK DEEHY; DOROTHY R. FREEMAN; MARGARET GRIFFITHS; LOTTE MARCUS; F. J. McGILL; VERITY M. ROSS; EDWARD V. SHINER; LAWRENCE SHULMAN; MARY STEVENSON

Assistant Professors — BEN ZION DALFEN; SHEILA GOLDBLOOM; ESTELLE HOPMEYER; DOROTHY SIROTA; SHIRLEY STEELE; RUTH TANNENBAUM

Lecturers — MARIE BRISEBOIS; CAROLE CHRISTENSEN; NORMA FETTERLY; MARION GARMAISE; IRENE GORDON; JANET MACDONALD; JUDITH MAGILL; DIANE REICHERTZ; TRYNA ROTHOLZ; AMY SHULMAN; CAROL SPEIRS; ELIZABETH URTNOWSKI

Sociology

Professors — DAVID N. SOLOMON *(Chairman)*; RICHARD F. HAMILTON; MAURICE PINARD; IMMANUEL WALLERSTEIN; WILLIAM A. WESTLEY

Associate Professors — ROGER G. KROHN; DONALD VON ESCHEN

Assistant Professors — MICHAEL P. CARROLL; MARLENE DIXON *(on leave 1973-74)*; PHILIP EHRENSAFT; JOSEPH LELLA; PRUDENCE RAINS; GERTRUDE J. ROBINSON; MALCOLM SPECTOR

Spanish Language and Literature

Professor — SOLOMON LIPP *(Chairman)*

Associate Professors — MONICA HARVEY; ANDRE MICHALSKI; JULIO SANCHEZ; VICTORIANO UGALDE-CUESTA

Assistant Professors — MARCELINO AMASUNO; NELLY MARTINEZ; VICTOR OUIMETTE *(on leave 1973-74)*; JEAN MARC VARY

Lecturers — KAY SIBBALD; DIANE WILLIAMSON

UNIVERSITY EDUCATION IN ARTS

The purpose of a university education in Arts is to provide students with the critical ability, analytical skills, and general intellectual maturity necessary to pursue either graduate work, professional studies, or a practical career. The Faculty feels that the University should seek to educate students as broadly as possible in the concepts, problems, and methodology of the Humanities and Social Sciences. For a student in the Faculty of Arts the pursuit of learning and intellectual discipline for their own sake should constitute a meaningful preparation both for individual development and for any future vocation.

Humane studies remain the core study in the development of our way of life. To those who argue that the Bachelor of Arts degree does not prepare a student for a professional career, we can only answer that it prepares him for an aware life and that generalists are often the best prepared graduates, because they have an overview of their society; they can learn whatever else they need in on-job training.

At the Arts Convocation of June, 1972, Principal Robert Bell expressed this view of the Faculty of Arts:

"Somewhere in the university there must be a strong area that is socially and economically useful, but whose existence is not directly tied to social and economic usefulness, and whose value is not primarily reckoned directly in those terms. This means, I suppose, only that the values are judged on a longer rather than a shorter range view. This area must surely be the Faculty of Arts. Here one can claim to be guarding and forwarding the basic culture of our time. At the same time, the Faculty of Arts is likely to be the seat of the most vocal and best-informed criticism of our actions and institutions as a society. It is of the first importance for all of us to support this Faculty, even when, as must occur, we disagree with what it is saying at the moment".

PROGRAM INFORMATION

The Faculty of Arts offers the Bachelor of Arts (B.A.) and the Bachelor of Social Work (B.S.W.) degrees.

DEPARTMENTS AND CENTRES OFFERING PROGRAMS IN THE FACULTY

African Studies Program, Leacock Building, Rm. 717
Anthropology, Leacock Building, Rm. 719
Art History, Arts Building, Rm. W225
Canadian Studies Program, Leacock Building, Rm. 625
Centre d'Etudes Canadiennes-Françaises, 3475 Peel Street, Rm. 102
Classics, Leacock Building, Rm. 517

East Asian Studies, 3434 McTavish St.
Economics, Leacock Building, Rm. 434
English, Arts Building, Rm. 120
French Language and Literature, Peterson Hall, 3460 McTavish Street, Rm. 100
Geography, Burnside Hall, Rm. 513
German, Samuel Bronfman Bldg., 1001 Sherbrooke St. West
History, Leacock Building, Rm. 625
Industrial Relations, Samuel Bronfman Bldg., 1001 Sherbrooke St. West, Rm. 514
Italian, Samuel Bronfman Bldg., 1001 Sherbrooke St. West
Jewish Studies Program, 3511 Peel Street, Rm. 103
Linguistics, Samuel Bronfman Bldg., 1001 Sherbrooke St. West
Mathematics, Burnside Hall, Rm. 1005
Philosophy, Samuel Bronfman Bldg., 1001 Sherbrooke St. West
Political Science, Leacock Building, Rm. 434
Psychology, Stewart Biology Building, Rm. W8/1 or W8/8
Religious Studies, 3520 University Street, Rm. 101
Russian and Slavic Studies, Samuel Bronfman Bldg., 1001 Sherbrooke St. West
Social Work, 3506 University Street, Rm. 300
Sociology, Leacock Building, Rm. 709
Spanish Language and Literature, Samuel Bronfman Bldg., 1001 Sherbrooke St. West

B.A. DEPARTMENTAL MAJORS

The following majors are described in detail in the departmental entries in the Calendar:

ANTHROPOLOGY
ART HISTORY
CLASSICS
ECONOMICS
ENGLISH
FRENCH
GEOGRAPHY
GERMAN
HISTORY
ITALIAN
JEWISH STUDIES
LINGUISTICS
MATHEMATICS
PHILOSOPHY
POLITICAL SCIENCE
PSYCHOLOGY
RELIGIOUS STUDIES
RUSSIAN
SOCIOLOGY
SPANISH

B.A. INTERDISCIPLINARY MAJORS

AFRICAN STUDIES
CANADIAN STUDIES
CENTRE D'ETUDES CANADIENNES-FRANÇAISES
CENTRE FOR EAST ASIAN STUDIES
INDUSTRIAL RELATIONS
NORTH AMERICAN STUDIES

For further information on the above, consult the alphabetical listings in the Calendar.

A brief outline of the other interdisciplinary majors follows. For further information please consult the appropriate Adviser.

CLASSICS AND LINGUISTICS (See page 74).

HUMANISTIC STUDIES:

18 credits in one language (Latin, Greek, German, Italian, Russian, Spanish); 6 credits in a Social Science; 30 credits in no more than three humanities departments (languages other than one already chosen, Philosophy, English, French, History, Music and Religion).

Please consult Professor Stewart, Department of Italian.

LATIN AMERICAN STUDIES:

Minimum of 12 credits in Spanish; 42 credits from Departments of Anthropology, Economics, Geography, History, Political Science, Sociology and Spanish.

Please consult Professor Lipp, Department of Spanish.

MODERN LANGUAGES:

6 credits in Social Sciences; 12 credits in Linguistics; 18 credits in each of two foreign languages (not English or French).

Please consult Professor Richter, Department of German.

MODERN LITERATURE:

6 credits in English; 6 credits in French; 12 credits in English or French Literature; 18 credits in each of two modern foreign literatures.

Please consult Professor D'Andrea, Department of Italian.

B.A. HONOURS

The following Honours programs are described in detail in the departmental entries in the Calendar:

ANTHROPOLOGY
ART HISTORY
CLASSICS
EAST ASIAN STUDIES
ECONOMICS
ENGLISH
FRENCH
GEOGRAPHY
GERMAN
HISTORY
ITALIAN
JEWISH STUDIES
LINGUISTICS
MATHEMATICS
PHILOSOPHY
POLITICAL SCIENCE
PSYCHOLOGY
RUSSIAN
SOCIOLOGY
SPANISH

JOINT HONOURS

Joint Honours programs are available in many related disciplines. Please consult departmental listings.

B.A. FACULTY PROGRAMS

MATHEMATICS and PHILOSOPHY:

Mathematics 189-217A; 218B; 245A,B; 318A, 328B; 348A, 349B; One of Mathematics 189-222A,B, 314A,B, 323A,B, 324A,B; Three additional credits in Mathematics. One of Philosophy 107-340D, 341D, 350D, 351D; and two full courses in Philosophy approved by the Department. Nine additional credits in Philosophy. 54 credits. (This faculty program leads to a B.A. degree. Consult the Department of Philosophy to obtain an Adviser.)

MATHEMATICS and PSYCHOLOGY:

Mathematics 189-222A,B, 223A, 323A,B, 324A,B, 423A, 424B, or Psychology 204-305A,B, 357B, six credits Introductory Psychology, 335A, 336B, twelve credits of options selected from Mathematics 189-217A, 218B, 314A,B, 317A, 318A, 328B, 417A, 447D, Computer Science 308-200A, or other approved courses, twelve credits selected from Psychology non-statistics courses. 54 credits. (This faculty program leads to either a B.A. or a B.Sc. degree. Consult the Department of Mathematics or the Department of Psychology to obtain an Adviser.)

PSYCHOLOGY, GENERAL:

Any of the Major sequences in Psychology with the substitution of 6 credits from U2 courses in Psychology for 204-211D and Psychology 204-305A,B. 54 credits. (Consult the Department of Psychology to obtain an Adviser.)

DEPARTMENTAL OFFERINGS AND PROGRAMS OF STUDY

For graduate courses in all Departments see the *Announcement of the Faculty of Graduate Studies and Research.*

An official lecture timetable is available before Registration.

AFRICAN STUDIES PROGRAM

The "Interdisciplinary Area Major" in African Studies is designed for those students who wish to take advantage of the growing resources at McGill, and elsewhere in the Montreal area, for the pursuit of an interdisciplinary approach to the African continent.

Students wishing to major in African Studies should consult one of the advisers (see Staff Listing, page 49) at the beginning of their first academic year. While pursuing their Major, they will be expected to concentrate as well in a regular discipline of the university. Disciplinary specialization is not, however, restricted to those for which an Adviser is listed.

The Major consists of 54 credits (9 full courses or the equivalent), including African Studies 499D in the final year. All the courses listed below must be taken (42 credits), while 12 credits should be selected in consultation with Major Advisers. One or two relevant prerequisites may be included in the total, and the seven should include courses from at least three departments (for full descriptions and prerequisites of courses see listings under individual departments).

Training in an African language is encouraged, and may form a part of the Major program. Formal training is available at McGill in Arabic. In addition, tapes for the study of Swahili and other languages are available through the Linguistics Department and the Language Laboratory in Peterson Hall.

Modifications in, or additions to, the program from relevant courses in Economics, Education, Geography, Linguistics and other disciplines, may be made with the consent of the African Studies Committee.

The culmination of the Major is the Research Seminar, 111-499D.

Options

Anthropology 151-315D. Culture And Social Change in Modern Africa. (6 credits.)
History 101-200D. A History Of Africa. (6 credits.)
Political Science 160-324D. Politics And Government In Africa. (6 credits.)
Economics 154-314B. African Economic Development. (3 credits.)
English 120-499D. African Literature In The Twentieth Century. (6 credits.)
History 101-430D. France and the Africans. (6 credits.)
Sociology 166-460A. National Liberation Movements In Africa. (3 credits.)

Final Year Requirement

111-499D. Research Seminar In African Studies. (6 credits; Prerequisite: Open to Area Majors in good standing, and to others by permission.) An interdisciplinary research seminar on topics of common interest to staff and students of the African Studies Program. As part of their contribution, students will prepare a research paper under the supervision of one or more members of the staff. STAFF

ANTHROPOLOGY (151)

Stephen Leacock Building, Room 719; Telephone 392-5179

The Honours and Major programs in Anthropology provide a liberal arts education which emphasizes the similarity and diversity of human behaviour, understanding of social and cultural systems, and the processes of socio-cultural changes from man's origins to the present day. Although neither the Honours nor the Major programs provide a professional training geared to specific jobs, they may serve as a useful background for those who are planning a career in law, foreign service, community organization, public administration, journalism, and teaching and research in social sciences and humanities. Needless to say, to be a qualified professional in most of these fields requires further training at professional or graduate schools.

While the Major program allows a greater freedom to choose from courses offered by other departments to suit the student's needs and interest, the Honours program provides a greater concentration in anthropology with substantial breadth and depth. It should be noted that the completion of an Honours program is frequently required for admission into graduate or professional schools.

Major Program

There is no prerequisite for admission into the Major program in Anthropology. The program requires that the student take 10 courses (30 credits) in Anthropology, of which three must be "advanced courses" (400 level) and eight courses (24 credits) in no more than three of the following fields: Biology, Classics, Economics, Geography, History, Linguistics, Philosophy, Political Science, Psychology, Religion and Sociology. Contact Miss Jeanette Wilson at the Department Office for inquiry (392-5176).

Honours Program

The entrance requirement for admission to the honours program in Anthropology is satisfactory completion of one anthropology course at CEGEP. In order to continue in the honours program students must meet the academic standing requirements set forth by the Faculty, and in order to complete the honours program in Anthropology in the final, graduating year, the grade-point average for the preceding year (usually the U2 year) must be 3.0 or higher for all courses as well as for anthropology courses.

An Honours degree in Anthropology will be granted to a student who has satisfied the requirements of the program and who has an average of 3.0 or better for all the anthropology courses credited towards the program and for all the courses taken during the last two years (usually U2 and U3 years). A first class honours degree in Anthropology will be given to a student with an average of 3.5 or better.

An Honours student in Anthropology is required to take 20 anthropology courses (60 credits) of which two can be anthropology courses taken in CEGEP. Up to three of the courses can be courses given by other departments, if they are directly related to the student's focus of study within anthropology and are approved by the student's adviser on the Undergraduate Committee of the Anthropology Department.

The 20 anthropology courses should include at least three of the five "core courses" (354A, 355B, 356B, 357A, and Linguistics 230A); 358B and 462A and/or 463B (in which an honours project is prepared); and at least three other "advanced courses" (400 level courses).

Each student has the opportunity to construct within the Honours program a concentration focused on a particular field of interest, such as prehistory and evolution, cultural systems, social and political organization, or on a particular geographical area, such as Africa, North America or Middle East. Such concentration is made possible by the use of the "Special Topics" courses, in which a student works under the supervision of a staff member in an area not covered by courses currently given. Special Topics courses can be coupled, concurrently or sequentially, with regular courses, under the supervision of the instructors of the regular courses, in order to allow more intensive work in the area covered by regular courses. Papers or projects can be submitted to two or more courses, provided that prior written arrangements have been made with the instructors with the approval of the student's adviser.

For more information on the Honours program, consult an appropriate adviser on the Undergraduate Committee of the Department, through Miss Jeanette Wilson at the Department Office (392-5176).

Joint Honours Programs

Joint Honours programs are established with Art History, Classics (Classical Archaeology), Economics, English, Geography, History, Linguistics, Philosophy, Political Science, and Sociology. The Anthropology part of the requirements for these programs is the completion for 11 courses (33 credits) in Anthropology, which must include three of the "core courses" (see above for the honours program), 151-358B, two "advanced courses" and 151-462A or 151-463B in which an Honours project with an interdisciplinary approach is prepared. For more information on the anthropology requirements

of the joint honours programs, contact Miss Jeanette Wilson at the Department Office (392-5176) who will direct the students to an appropriate adviser on the Undergraduate Committee. For information on the requirements for the other discipline making up the Joint Honours program, consult the department concerned.

Course Descriptions

FIRST LEVEL COURSES

E- and 200-level courses for which there are no prerequisites.

151-E21A. INTRODUCTION TO ANTHROPOLOGY. PHYSICAL AND SOCIO-CULTURAL EVOLUTION. (3 credits.) Nature of man in biological world, evolutionary principles as they apply to man, role of culture in biological evolution, racial differentiation, evolution of culture from the earliest beginnings to the rise of early civilizations. PROFESSOR IKAWA-SMITH

151-E22B. INTRODUCTION TO ANTHROPOLOGY. CULTURAL AND SOCIAL. (3 credits.) Analysis of cultural and social systems, language, kinship, politics, religion, culture and personality. PROFESSOR GMELCH

151-205B. THE ORGANIZATION OF SOCIAL LIFE. (3 credits.) An exploration of various dimensions of human organization drawing on data about diverse societies, Western and non-Western, historic and contemporary, preindustrial and industrial. Aspects to be examined include autonomy and interdependence, cooperation and competition, superordination and subordination, centralization and decentralization. PROFESSOR SALZMAN

151-206A. CULTURE AND ADAPTATION. (3 credits.) An ecological approach to the study of human society and culture. PROFESSOR SALZMAN

151-209B. ANTHROPOLOGY OF RELIGION. (3 credits.) Nature and function of religion based on the examination and comparison of religious beliefs and practices prevailing in various cultures. The relation of religion to economic, political and other aspects of culture. PROFESSOR ROUSSEAU

151-215D. CULTURE AND SOCIAL CHANGE IN MODERN AFRICA. (6 credits.) First term: Geographical and historical background; the diversity of peoples and culture; patterns in African society, politics, economy, religion and art. Second term: Impact of colonial policies on institutional systems; African nationalism and the new states; urbanization, social change and modernization. The relevance of anthropology to Africa will be considered. PROFESSOR ARONSON

151-228A. AN INTRODUCTORY TO EDUCATIONAL ANTHROPOLOGY. (3 credits; Not given 1973-74.) Anthropological approaches to the study of education will be delineated using case studies from a wide range of cultural situations including the Canadian North and urban North America. A theoretical analysis of such areas as the transmission of values, the classroom as a unit of socio-cultural analysis, and the role and functions of formal education cross-culturally considered.

151-236D. INDIGENOUS PEOPLES OF NORTH AMERICA: A GEOGRAPHICAL AND CULTURAL APPROACH. (6 credits; Also listed as Geography 183-336D.) A survey of North American Indian and Eskimo cultures from ethnographic and ecological perspective. The areal emphasis of the course will be upon Canadian Eskimo and Indian populations. The evolutionary approach will be utilized in the analysis of data pertaining to ecological adaptation and socio-cultural change among selected groups. PROFESSORS KEMP AND LAMBERT

INTERMEDIATE COURSES

Prerequisite: one anthropology course, which is, in some cases, specified.

151-303B. HUMAN EVOLUTION. (3 credits; *prerequisite:* 151-E21A or permission of the instructor.) An examination of man's biological origins and the significance of his physical diversity. The behaviour of non-human primates, primate evolution, the role of culture in human evolution, racial classifications, the dynamics and behavioural significance of racial variation. PROFESSOR TRIGGER

151-308A. POLITICAL ANTHROPOLOGY. (3 credits.) The study of political systems through the examination of selected cases. Attention to theory of politics by comparative analysis of particular polities. PROFESSOR ROUSSEAU

151-312B. PERSONAL DOCUMENTS AND THE HUMAN BEING IN ANTHROPOLOGY. (3 credits; *Prerequisite:* E22B or permission of the instructor.) An introduction to individuals from a series of traditional, developing, and modern societies through the study of autobiographies, family studies, and fictional accounts. Problems in the definition of "understanding" other cultures and in anthropology as a human science will be considered. PROFESSOR SINDELL

151-314A. AN INTRODUCTION TO PSYCHOLOGICAL ANTHROPOLOGY. (3 credits; *Prerequisite:* E22B or permission of the instructor.) A survey of current theories and methods employed in psychological anthropology. Some areas considered are: cross-cultural studies of socialization

and personality development; cultural factors in mental illness; individual adaptations to rapid socio-cultural change. PROFESSOR SINDELL

151-316A. ANTHROPOLOGY OF COMPLEX SOCIETIES. (3 credits.) Comparative study of complex societies; processes of development; social organization; structural interrelationships; problems of conflict and integration; processes of change. Evaluation of anthropological approaches to the study of these societies. PROFESSOR GMELCH

151-321B. URBAN ANTHROPOLOGY. (3 credits.) A comparative analysis of urbanization in Africa, Asia and Latin America; rural urban migrations; the demography and institutional structures of urban area; tribalism in towns; status, class and elites in towns; family structure; urban network analysis; urban based associations; the role of the city in national development. PROFESSOR GUTKIND

151-325B. PEOPLES OF THE CARIBBEAN. (3 credits; Not given 1973-74.) History, geography, blending of metropolitan and Afro-Indian influences; implications of slavery and the plantation system; social stratification and religious organizations. The changing socio-poiltical structure; the movement towards self-government and independence; post-independence social, economic and political problems. STAFF

151-326A. NATIVE PEOPLES OF SOUTH AMERICA. (3 credits.) Ethnographic survey of the native peoples of South America and discussion of some of the major themes in South American ethnology including the present political situation of the Indians. PROFESSOR ARCAND

151-331B. PREHISTORY OF EAST ASIA. (3 credits.) Comparative study of prehistoric hunting and gathering cultures in China, Japan, Korea, Mongolia and Eastern Siberia; origins and dispersal of food production; cultural processes leading to the rise of literate civilizations in certain regions of East Asia. PROFESSOR IKAWA-SMITH

151-344A. ETHNOHISTORY OF NEW FRANCE. (3 credits.) The methods and techniques of Ethnohistory; an interdisciplinary approach to studying the history of peoples who have produced no written records of their own. These methods will be applied to a systematic investigation of interaction between Indians and Europeans in Eastern Canada during the French regime. PROFESSOR TRIGGER

HONOURS COURSES

Restricted to Honours and Joint Honours students in anthropology and those with the permission of the instructor.

151-354A. SOCIAL ORGANIZATION. (3 credits.) Structural and optative aspects of interpersonal relations, group formation, conflict and integration in differently organized societies. Processes of continuity and change. PROFESSOR ROUSSEAU

151-355B. THE STRUCTURE OF CULTURE. (3 credits.) The formal analysis of cultural systems, the patterning and integration of cultural, ethos and value systems. PROFESSOR ARCAND

151-356B. ANTHROPOLOGICAL ARCHAEOLOGY. (3 credits.) Comparative study of prehistoric sociocultural systems from the Palaeolithic period to the rise of the first civilizations in selected parts of the Old and the New Worlds. PROFESSOR IKAWA-SMITH

151-357A. ARCHAEOLOGICAL METHODS. (3 credits. Not given in 1973-74.) The collection of materials in field investigations and their analysis to yield cultural information. The processes of inferences and reconstruction in archaeological interpretation. PROFESSOR TRIGGER

151-358B. INTRODUCTION TO RESEARCH. (3 credits.) The nature of anthropological research as evidenced in monographs and articles; processes of concept of formation and interpretation of data; the problem of objectivity. PROFESSOR SALISBURY

151-380A, 151-381B, 151-382A, 151-383B. SPECIAL TOPICS. (3 credits; *prerequisite:* permission of the instructor.) Supervised reading in special topics under the direction of a member of the staff. PROFESSOR ARCAND AND STAFF

151-462A, 151-463B. INDEPENDENT RESEARCH. (3 credits; *prerequisites:* Honours status and 151-358B and permission of the instructor.) Supervised reading and preparation of a research report under direction of member of the staff. PROFESSOR IKAWA-SMITH AND STAFF

ADVANCED COURSES

Prerequisite: at least one 300-level anthropology course, which, in some cases, is specified.

151-402A. THE HISTORY OF ANTHROPOLOGICAL THEORY. (3 credits.) Explorations in the history of anthropological theory; schools, controversies, intellectual history, sociology of knowledge. PROFESSOR SALISBURY

151-404B. TOPICS IN PSYCHOLOGICAL ANTHROPOLOGY. (3 credits; *Prerequisite:* 151-314A and consent of instructor.) Each year one or two problems in psychological anthropology will be discussed and analyzed in depth, for example the development of adolescent identity in

a series of cultures or the effects of different household residence patterns on children's development. PROFESSOR SINDELL

151-415A. PROBLEMS IN AFRICAN ANTHROPOLOGY. (3 credits; *Prerequisite:* 151-215D or consent of the instructor.) A detailed examination of the peoples and cultures of a major region of Africa, with attention to problems in ethnology, social change and development. In 1973 the course will be run as a seminar on Nigeria, with special economic growth, the civil war, the development of class and ethnic consciousness, and the growth of the military. PROFESSOR ARONSON

151-422A. HISTORY, IDEOLOGY AND THEORY IN SOCIAL CHANGE AND MODERNIZATION OF NON-WESTERN SOCIETIES. (3 credits.) Socio-cultural perspectives on Colonialism and policies; their impact on preindustrial societies; the structure and dialectic of modernization processes and their impact; ideology and discontent. PROFESSOR GUTKIND

151-424A. ECONOMIC ANTHROPOLOGY. (3 credits.) Analysis of the modes of production, exchange, and consumption of goods and services, in societies occupying different ecological situations; questions of choice and planning; and their concretization into institutional arrangements; relationships between life-ways; problems of economic development. PROFESSOR SALISBURY

151-428B. SEMINAR ON EDUCATIONAL ANTHROPOLOGY. (3 credits; *Prerequisite:* 151-228A and consent of instructor; limited to 15 students; not given 1973-74.) A seminar focused on methodological and theoretical issues in educational anthropology. Ethnographic techniques applicable to the study of formal education, methodological problems in the analysis of teacher-pupil interaction, and way to ascertain the cultural continuities and discontinuities between the student's school and non-school experience will be discussed PROFESSOR SINDELL

151-429B. ADVANCED TOPICS IN THE STUDY OF LATIN AMERICA. (3 credits; *Prerequisite:* 151-326A or consent of the instructor.) A detailed examination of selected topics of Latin American society and culture. PROFESSOR GMELCH

151-437B. ANTHROPOLOGICAL APPROACHES TO CULTURE CHANGE. (3 credits.) Consideration of anthropological approaches to directed culture change through a survey and analysis of relevant case materials. History of directed culture change; introduction to theoretical, methodological and ethical issues involved in and deriving from studies of and participation in directed culture change. Role of anthropoloigsts as initiators of participants in, and/or evaluators of directed culture change: past, present and future(?). PROFESSOR LAMBERT

151-440B. SEMINAR IN THE ANTHROPOLOGY OF COGNITION. (3 credits.) Investigation into how people perceive and organize material phenomena — things, events, people, etc. — in an attempt to understand the organizing principles underlying behaviour. PROFESSOR ARCAND

151-445B. SEMINAR ON MIDDLE EASTERN SOCIETY AND CULTURE. (3 credits.) The ethnography and social anthropology of the Middle East, with special attention to life at the community level and to community-society relations. Such questions as "urban-peasant-tribe" relations, arid land adaptation, the role of folk Islam, and the place of women. PROFESSOR SALZMAN

151-448B. SETTLEMENT ARCHAEOLOGY. (3 credits; *Prerequisites:* at least two, and preferably three, lower level courses in anthropology, including 151-356B or 151-357A.) This course will examine theories that have been developed in recent years concerning human settlement and evaluate the utility of these theories for deriving a variety of kinds of cultural information from spatial distributions of archaeological data. Special attention will be given to factors affecting the evolution of settlement units, from which a more general theory of settlement may be derived. PROFESSOR TRIGGER

151-450B. THIRD WORLD PEASANTRIES: THE CHANGE FROM RURALITY TO URBAN PROLETARIANS. (3 credits; *prerequisites:* 151-308A or 151-354A, plus one area course, or permission of the instructor.) Review of recent anthropological literature, as well as the approaches of social history and political-economy, focusing on external and internal forces instrumental in transforming peasantries into urban proletarians in "Third World" nations. Analysis of fission and fusion processes, stratification, class, rural and urban protest and mechanisms of incorporation of small units in larger political domains. PROFESSOR GUTKIND

451-461A. RESEARCH TECHNIQUES. (3 credits; *prerequisite:* consent of the instructor.) Field techniques, interviewing, participant observation, projective, and other testing techniques such as genealogies and life histories, problems of field work, rapport, contact, role definition, culture shock, etc. PROFESSOR LAMBERT

151-480A, 481B, 482A, 483A, 484A, 485B. SPECIAL TOPICS. *(Prerequisite:* Completion of all available courses relevant to the topic and consent of the instructor.) Supervised reading in advanced special topics under direction of a member of staff. PROFESSOR IKAWA-SMITH AND STAFF

ARABIC (397)

397-E10D. INTRODUCTION TO LITERARY ARABIC. (6 credits; 5 hours, 1 hour laboratory). The Arabic alphabet, pronunciation, principles of grammar, basic vocabulary, reading selections, simple composition and oral drills.

397-E20D. ELEMENTARY ARABIC. (6 credits; 4 hours.) Further grammar and drills, readings in modern and classical Arabic, composition and oral drills.

397-300D. INTERMEDIATE ARABIC. (6 credits.)

397-400D. ADVANCED ARABIC. (6 credits.)

ART HISTORY (123)

Arts Building W-225 (West Wing, top floor); Telephone: 392-4977.

The Department of Art History at McGill is concerned almost exclusively with the historical-critical study of architecture, sculpture and the two-dimensional arts from ancient times to the present. These arts are treated as an illumination of history — as a visual embodiment and expression of the philosophical, religious, intellectual and social trends of the successive historical periods. The student is thus given an introduction to the richness, scope and significance of our historical and cultural heritage. At the same time the monuments are treated both as products of creative expression and as objects of aesthetic quality, providing the student with a basis for both receptivity to artistic communication and sound critical judgement.

A single, introductory, non-professional studio course is offered primarily as a supplement to the historical-critical study of the subject.

The Department offers majors, honours, joint-honours and graduate programs. The major program provides a broad basis in the history and criticism of art, but at the same time retains considerable flexibility enabling the student to participate in the many other disciplines in the humanities and social sciences with which art history is characteristically related. The honours program, while almost equally flexible, offers a deeper and more comprehensive penetration of the subject and provides the necessary foundation for those intending to continue into graduate studies in the discipline. But it is intended also for the undergraduate desiring a more cohesive and challenging intellectual experience and development.

Major in Art History

There are no pre-University requirements for this program.

The student majoring in Art History will take at least 30 and not more than 36 credits in Art History of which not more than 12 may be elected in the First year. Also with the approval of his Faculty Adviser, the student will choose 24 additional credits in at most 3 disciplines in the Humanities and/or Social Sciences, complementary to the study of Art History.

Adviser: Professor Bertos, Arts W-265, Telephone: 392-4976.

Honours in Art History

There are no pre-University requirements for this program.

To qualify for the Honours degree in Art History candidates must pass 36 credits, four Honours seminars (twelve credits), and the Honours comprehensive examinations (Art History 499D).

In the first University year, the candidate will take at least 12, at most 18, Art History credits. In each of the second and third University years the student will normally take 12 Art History credits and two Honours seminars (3 credits each). At the end of the final University year, as well as the final examinations in their Art History courses, Honours students, having prepared themselves in the areas not covered by their formal courses, will take the Honours comprehensives written and oral examinations.

The passing mark for Honours standing in Art History is a GPA of 3.0. For promotion to the second university year, candidates must attain a GPA of 3.0 in their first university year Art History courses and marks not below C in each of their other courses. Qualification for the Honours degree requires a CGPA of 3.0 in all Art History courses and seminars taken, with not more than two of these in the C category; at least a C average in all non-Art History courses; and at least 70 in the Honours comprehensive examinations (Art History 499D).

Honours students intending to proceed to Graduate studies will be encouraged to begin the study of a third language recommended by the Department. (Note: courses in studio practice do not count towards the Honours degree).

Adviser: Professor Judkins, Arts W-230, telephone: 392-4975.

Joint Honours

There are no fixed pre-University requirements for these programs.

Proposals by qualified students for Joint Honours studies in Art History and certain appropriately related subjects may be submitted for consideration jointly by the Chairmen of the Departments concerned.

Adviser: Professor Judkins, Arts W-230, telephone: 392-4975.

Course Descriptions

123-200D. FORM AND MEANING. (6 credits.) Dealing broadly in terms of Painting, Sculpture and Architecture, the aim of this course is to develop the student's perception and understanding of the work of art — both as a visual medium of expression and as a crystallization of its historical and cultural context. PROFESSORS JUDKINS, MITCHELL AND———

123-026D. FUNDAMENTALS IN DRAWING AND PAINTING. (6 credits; No previous training is expected.) The purpose of the course is to develop the creative sensibilities of students by introducing them to basic principles of drawing, painting and sculpture by studio-work. No previous training or experience is expected. MR. LANGSTADT

NOTE: Enrolment in this course is limited to fifty students. Selection from among all those registered will be made, by lot, at the time of (not before) the first scheduled meeting of the course. Except by special consent of the instructor, supplemental assessments will not be given in this course.

123-211A. EARLY AND CLASSICAL GREEK ART AND ARCHAEOLOGY. (3 credits.) A selective survey of the slow emergence of the visual arts in the Hellenic world after the Mycenean Age and their transformation to the end of the fourth century. Emphasis is placed upon the cultural significance of this phase of Greek civilization for modern man.
PROFESSOR GALAVARIS

123-212B. HELLENISTIC GREEK AND ROMAN ART AND ARCHAEOLOGY. (3 credits.) The spirit of the forms in the visual arts discussed as manifestations of a new world-view that became predominant from the time of Alexander's conquests to the appearance of Christian Art. Emphasis is placed on Rome's contribution to the classical tradition.
PROFESSOR GALAVARIS

123-220A. PRE-COLUMBIAN ART. (3 credits; Not given in 1973-74.) The sculpture, architecture and painting of the major civilizations of the New World prior to Cortes. Within their cultural contexts, emphasis is placed on the visual and expressive qualities of the works in question.
STAFF

123-221B. NORTH AMERICAN PAINTING. (3 credits; Not given in 1973-74.) A detailed examination of the emergence of an indigenous cultural expression, from the Colonial period to the present, dealing in alternate years with either American or Canadian painting. STAFF

123-222D. RENAISSANCE AND POST-RENAISSANCE SCULPTURE. (6 credits; Not given in 1973-74.) European sculpture of the fifteenth through the nineteenth centuries, with emphasis upon the works of the principal sculptors. Attention will be given to the special problems involved in the three-dimensional expression of styles in art. PROFESSOR MITCHELL

123-223A. EARLY RENAISSANCE ART IN ITALY. (3 credits.) The emergence of a new concept of art in Italy during the 15th century expressed in the works of the most important artists of the period. Special consideration will be given to the relationship of the visual arts to the classical tradition and to contemporary literature, philosophy and social conditions.
PROFESSOR BERTOS

123-224B. HIGH RENAISSANCE ART IN ITALY. (3 credits.) A systematic investigation of the Italian art of the 16th century — one of the most important periods in art history. Attention will be given also to the relation of the visual arts to the contemporary intellectual and social trends. PROFESSOR BERGMANN

123-312A. EARLY CHRISTIAN AND BYZANTINE ART AND ARCHAEOLOGY. (3 credits.) The spirit of the art of the Early Church and of the Byzantine World seen through the Fine Arts in relation to other expressions of the civilization of the time. Emphasis is placed on the Art of Byzantium, the continuity of the classical tradition and its meaning for western man.
PROFESSOR GALAVARIS

123-313B. WESTERN MEDIAEVAL ART AND ARCHAEOLOGY. (3 credits.) A presentation of the visual arts embodied in the "Mediaeval Cathedral" discussed as cultural manifestations of Mediaeval Man's world-view. PROFESSOR GALAVARIS

123-315D. GOTHIC ARCHITECTURE. (6 credits; Not given in 1973-74.) A study of Gothic architecture with special emphasis upon its contemporary literary documents and upon the analysis of the form and structure of the major monuments. This will be followed by a critical evaluation of modern interpretations of Gothic architecture. PROFESSOR———

123-316A. THE ARCHITECTURE OF THE CITY AND CITY PLANNING. (3 credits; Not given in 1973-74.) A survey of the development of the architecture of the city from the Greeks and Romans through the end of the eighteenth century. Special attention will be given to the study of the development of specific cities as well as to theoretical writings by architects on city planning. PROFESSOR ———

123-332A. RENAISSANCE ARCHITECTURE. (3 credits.) The study of a selected number of major architects from 1400 to 1600 with special emphasis on the development of architectural theory and the revival of classical antiquity in Italy. PROFESSOR ———

123-333B. BAROQUE AND ROCOCO ARCHITECTURE. (3 credits.) The development of the Baroque style in Italy and subsequently in the rest of Europe from 1600 to 1750. Emphasis on the relationship between theory and practice. The origins of Classicism, Palladianism and the Rococo style will also be studied. PROFESSOR ———

123-334D. EUROPEAN ART OF THE 17TH AND EARLY 18TH CENTURIES. (6 credits; Not given in 1973-74.) The emergence of the Baroque in Rome, its dissemination throughout Europe, and artistic tastes in the 18th century. Attention is given to the relationships between the visual arts and other aspects of the intellectual, religious and social life of these centuries.
PROFESSOR GALAVARIS

123-335A. NEO-CLASSICISM, ROMANTICISM AND REALISM. (3 credits.) An investigation of the closely linked movements generated by the intellectual and social revolutions of the mid-eighteenth century. PROFESSOR MITCHELL

123-336B. IMPRESSIONISM, NEO-IMPRESSIONISM AND POST-IMPRESSIONISM. (3 credits.) A stylistic and iconographic investigation of the principal movements in European painting and sculpture of the second half of the nineteenth century. PROFESSOR MITCHELL

123-337D. MODERN PAINTING AND SCULPTURE. (6 credits.) The modern movement in art; its late nineteenth century emergence, problems, character and place in the continuity of art history. PROFESSOR JUDKINS

123-343A. THE EMERGENCE OF RENAISSANCE ART IN NORTHERN EUROPE. (3 credits; Not given in 1973-74.) The development from Late Gothic to Renaissance, principally through the rise of the Early Netherlandish school and its relation to French art, in the 14th and 15th centuries. The monuments are examined within the changing religious and social climate of the times. PROFESSOR BERGMANN

123-344B. NORTHERN EUROPEAN ART OF THE SIXTEENTH CENTURY. (3 credits.) The specific character of Northern Renaissance art will be studied with due consideration of its diversity against the background of Christian humanism and Protestantism. Emphasis is placed on the major German artists and the development of graphic art. PROFESSOR BERGMANN

123-347A. MODERN ARCHITECTURE: 1750 TO THE PRESENT. (3 credits.) An examination of the origins of modern architectural thought in the intellectual revolution of Eighteenth century Europe followed by a study of subsequent developments internationally.
PROFESSOR ———

123-414D. WESTERN MEDIAEVAL PAINTING. (6 credits; Not given in 1973-74.) (Also open to First-year Graduate students.) A systematic study of the important centres and media (book painting, fresco, stained glass, etc.) of Mediaeval "Painting" from Carolingian through High Gothic times. The works of art are studied in relation to the religious spirit and social climate in which they were created. PROFESSOR BERGMANN

123-430D. EVOLVING CONCEPTS OF THE DISCIPLINE OF ART HISTORY. (6 credits; Not given in 1973-74.) (Also open to First-year Graduate students.) The historical development of approaches and methods employed by art historians since the Eighteenth century. The emergence of Art History as a systemaitc discipline in the Humanities — its contributions, responsibilities and present status. PROFESSOR BERTOS

123-440D. THE VISUAL LANGUAGE OF ARTISTIC EXPRESSION. (6 credits; Not given in 1973-74.) A detailed analysis of the nature, technicalities and functions of the factors of

Representation, Design and Medium, including their evolving historical development, in combination with a study of their interactive synthesis in the total work, including comparative examination of the principal extant interpretations of the synthesis factor.
PROFESSOR JUDKINS

123-499D. HONOURS COMPREHENSIVE EXAMINATIONS. All Honours students must register for this course in the final year — see Honours in Art History above.

HONOURS SEMINARS. (3 credits each.) Honours candidates in their Second and Third University years will undertake special studies (the work consisting of recommended readings, written papers and discussions) in certain of the following areas as advised by the Department. (6 credits in each year.)

123-380A. ANCIENT AND EARLY MEDIAEVAL ART AND ARCHAEOLOGY. (Not given in 1973-74.) (3 credits.)
PROFESSOR GALAVARIS

123-381B. ANCIENT AND EARLY MEDIAEVAL ART AND ARCHAEOLOGY. (Not given in 1973-74.) (3 credits.)
PROFESSOR GALAVARIS

123-382A. LATER MEDIAEVAL ART. (Not given in 1973-74.) (3 credits.)
PROFESSOR BERGMANN

123-383B. LATER MEDIAEVAL ART. (Not given in 1973-74.) (3 credits.)
PROFESSOR BERGMANN

123-384A. ART OF THE RENAISSANCE. (Not given in 1973-74.) (3 credits.)
PROFESSOR ————

123-385B. ART OF THE RENAISSANCE. (3 credits.) PROFESSOR ————

123-386A. EUROPEAN ART OF THE 18TH AND 19TH CENTURIES. (3 credits.)
PROFESSOR MITCHELL

123-387B. EUROPEAN ART OF THE 18TH AND 19TH CENTURIES. (3 credits.)
PROFESSOR MITCHELL

123-388A. MODERN ART AND THEORETICAL PROBLEMS. (Not given in 1973-74.) (3 credits.)
PROFESSOR JUDKINS

123-389B. MODERN ART AND THEORETICAL PROBLEMS. (Not given in 1973-74.) (3 credits.)
PROFESSOR JUDKINS

123-480A. Same as Art History 123-380A for Final year students. (Not given in 1973-74.) (3 credits.)

123-481B. Same as Art History 123-381B for Final year students. (Not given in 1973-74.) (3 credits.)

123-482A. Same as Art History 123-382A for Final year students. (Not given in 1973-74.) (3 credits.)

123-483B. Same as Art History 123-383B for Final year students. (Not given in 1973-74.) (3 credits.)

123-484A. Same as Art History 123-384A for Final year students. (Not given in 1973-74.) (3 credits.)

123-485B. Same as Art History 123-385B for Final year students. Also open to First-year Graduate students. (3 credits.)

123-486A. Same as Art History 123-386A for Final year students. Also open to First year Graduate students. (3 credits.)

123-487B. Same as Art History 123-387B for Final year students. (Not given in 1973-74.) (3 credits.)

123-488A. Same as Art History 123-388A for Final year students. (Not given in 1973-74.) (3 credits.)

123-489B. Same as Art History 123-389B for Final year students. (Not given in 1973-74.) (3 credits.)

CANADIAN STUDIES PROGRAM

This interdisciplinary program is being offered in conjunction with the North American Studies Program to give undergraduates an opportunity to gain a fairly comprehensive view of the growth and achievement of the Canadian civilization.

In taking the Canadian Studies Program the student will select courses that deal with Canada and that total 54 credits. The student will select courses also so as to obtain at least 6 credits in each of the following: literature, history, and the social sciences.

Please consult Professor Miller, Department of History.

Anthropology

Prerequisites are required for most courses above the E20 level. Students lacking prerequisites or written permission from the course instructor may be required to drop courses.

151-236D. INDIGENOUS PEOPLES OF NORTH AMERICA: A GEOGRAPHICAL AND CULTURAL APPROACH. (6 credits.)

151-344A. ETHNOHISTORY OF NEW FRANCE. (3 credits; *Prerequisite:* Honours or major status in Anthropology or consent of instructor.)

Architecture

301-204B. HISTORY OF ARCHITECTURE IN CANADA. *(Prerequisite:* 301-102B.)

Economics

154-200D or 154-250D is prerequisite to all upper level courses in Economics except those for which other provision is made in the course description.

154-205A. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY I. (3 credits; *Prerequisite:* 154-200D or consent of instructor.)

154-206B. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY II. (3 credits; *Prerequisite:* 154-205A.)

154-302D. MONEY AND BANKING. (6 credits.)

154-304D. CANADIAN ECONOMIC POLICY. (6 credits.)

154-305D. GOVERNMENT AND BUSINESS. (6 credits.)

154-306D. LABOUR ECONOMICS AND INSTITUTIONS. (6 credits.)

154-311D. NORTH AMERICAN ECONOMIC DEVELOPMENT. (6 credits; *Prerequisite:* 154-200D or 154-201D.)

154-312D. POLITICAL ECONOMY OF DEPENDENCE IN THE WESTERN HEMISPHERE. (6 credits.)

154-352D. MACROECONOMICS. (6 credits.)

154-400D. ECONOMIC ANALYSIS. (6 credits.)

154-404D. TRANSPORTATION. (6 credits.)

154-408D. PUBLIC FINANCE. (6 credits.)

154-468A. URBAN AND REGIONAL ECONOMICS. (3 credits.)

English

120-E23A(228A). CANADIAN LITERATURE. (3 credits.)

120-E32B(229B). CANADIAN LITERATURE. (3 credits.)

120-360D. THE DEVELOPMENT OF PROSE FICTION IN CANADIAN LITERATURE. (6 credits.)

120-463A. CANADIAN LITERATURE. (3 credits.)

French

126-227A. INTRODUCTION A LA LITTERATURE QUEBECOISE I. (3 credits.)

126-227B. INTRODUCTION A LA LITTERATURE QUEBECOISE II. (3 credits.)

126-229D. INITIATION A LA LITTERATURE QUEBECOISE. (6 credits.)

126-264D. HISTOIRE DE LA CIVILISATION QUEBECOISE. (6 credits.)

126-329D. ROMAN QUEBECOIS CONTEMPORAIN. (6 credits.)

126-333A. LE THEATRE QUEBECOIS. (3 credits.)

126-334B. LE CINEMA QUEBECOIS. (3 credits.)

126-361D. ROMAN QUEBECOIS I. (6 credits.)

126-364D. LA POESIE QUEBECOISE. (6 credits.)

126-432D. POESIE QUEBECOISE CONTEMPORAINE. (6 credits.)

126-433A. LES CHANSONNIERS QUEBECOIS. (6 credits.)

126-436D. EVOLUTION DES IDEES AU QUEBEC AU 19e SIECLE. (6 credits.)

126-442D. EVOLUTION DE LA LANGUE FRANÇAISE AU CANADA. (6 credits.)

126-461D. ROMAN QUEBECOIS II. (6 credits.)

126-462D. LES ESSAYISTES QUEBECOIS — EXPLOSION DE LA PENSEE DEPUIS BORDUAS. (6 credits.)

126-492B. SEMINAIRE SPECIALISE DE LITTERATURE QUEBECOISE. (3 credits.)

French Canada Studies Program

Consult page 67.

Geography

183-301D. GEOGRAPHY OF CANADA. (6 credits.)

183-309A. GEOGRAPHY OF QUEBEC. (3 credits.)

183-336D. INDIGENOUS PEOPLES OF NORTH AMERICA. (6 credits.)

History

101-202D. INTRODUCTION TO THE HISTORY OF CANADA. (6 credits.)

101-323D. SOCIAL AND ECONOMIC PROBLEMS IN THE HISTORY OF FRENCH CANADA FROM THE 17TH CENTURY TO THE MIDDLE OF THE 19TH CENTURY. (6 credits; *Prerequisite:* 202D.)

101-344A. THE ETHNOHISTORY OF NEW FRANCE. (3 credits; *Prerequisite:* History 202D.)

101-352D. EMERGENCE OF ENGLISH CANADA: 1791-1867. (6 credits; *Prerequisite:* 202D or consent of instructor.)

101-353D. WAR AND SOCIETY IN CANADIAN HISTORY. (6 credits; *Prerequisite:* History 202D. This course is not open to candidates who have previously taken History 372D.)

101-362D. THE WEST IN CANADIAN HISTORY. (6 credits; *Prerequisite:* 202D.)

101-363D. CONTEMPORARY CANADA, 1890-1970. (6 credits; *Prerequisite:* History 202D or equivalent, or consent of instructor. This course is not open to candidates who have previously taken History 302A and 312B.)

101-403D. REGIONAL, SOCIAL AND CULTURAL HISTORY OF QUEBEC. (6 credits; *Prerequisites:* History 202D or consent of instructor. A reading and speaking knowledge of French is essential.)

101-432A. THE HISTORICAL LITERATURE OF THE MARITIME PROVINCES. (3 credits; *Prerequisite:* History 202D or equivalent, or consent of instructor.)

Music

214-391B. CANADIAN MUSIC. (3 credits; *Prerequisite:* 214-280D or consent of instructor.)

Political Science

160-211D. INTRODUCTION TO COMPARATIVE GOVERNMENT. (6 credits.)

160-320A. CANADIAN POLITICAL PROCESS. (3 credits; *Prerequisite:* 160-211D.)

160-337B. PUBLIC ADMINISTRATION. (3 credits; *Prerequisite:* 160-321D or consent of instructor.)

160-341A. THE DEVELOPMENT OF CANADA'S FOREIGN POLICY. (3 credits; *Prerequisite:* 160-211D or consent of instructor.)

160-342B. THE ISSUES, CONCEPTS AND PROCESSES OF MODERN CANADIAN EXTERNAL RELATIONS. (3 credits; *Prerequisite:* Political Science 341A.)

160-415B. POLITICAL PARTIES. (3 credits; *Prerequisites:* 160-211D and one other course in Comparative Government.)

160-421B. PROBLEMS IN CANADIAN POLITICS AND GOVERNMENT. (3 credits: *Prerequisites:* 160-221D and 160-320A.)

Sociology

166-E21A. INTRODUCTION TO SOCIOLOGY. (3 credits.)

166-E42B. SOCIAL STRATIFICATION. (3 credits; *Prerequisite:* 166-E21A.)

166-217A. MASS COMMUNICATIONS. (3 credits; *Prerequisite:* Introduction to Sociology.)

166-217B. SOCIAL ASPECTS OF MASS COMMUNICATIONS. (3 credits; *Prerequisites:* Introduction to Sociology & 166-217A or permission of instructor.)

166-223B. SOCIAL STRATIFICATION. (3 credits; *Prerequisite:* Introduction to Sociology.)

166-224B. CANADIAN SOCIETY. (3 credits; *Prerequisite:* Introduction to Sociology.)

166-326B. SOCIOLOGICAL ASPECTS OF POLITICAL BEHAVIOUR. (3 credits.)

166-435A. SOCIOLOGY OF POPULAR CULTURE. (3 credits; *Prerequisites:* Introductory Sociology, Mass Communications (217A) (formerly 317B), or consent of instructor.)

CENTRE D'ETUDES CANADIENNES-FRANÇAISES (157)

A student who wishes to Major in the French Canada Studies Program will establish, in consultation with an adviser who will become his tutor for the entire program, a detailed sequence of courses and seminars. Students will select a minimum of 54 credits in courses dealing with Quebec and/or Canada. This inter-disciplinary program is being offered in conjunction with various departments, to give undergraduate students an opportunity to have a comprehensive understanding of the Quebec society in its Canadian and North American context.

To inquire about the program, students should contact Professor Jean-Louis Roy (392-5203) or Professor Daniel Latouche (392-5216) at 3475 Peel Street.

Courses Offered by the French Canada Studies Program

157-200A. INTRODUCTION TO QUEBEC SOCIETY. (3 credits.) This special survey course will discuss the major historical developments in the economic, social, intellectual and political life of Quebec society in the XXth century, with special attention to the post 1945 period. This course is designed to familiarize students with some of the fundamental issues in contemporary Quebec and with the various methodological and bibliographical instruments needed for an understanding of Quebec society. Topics covered include English-French relations, the impact of industrialization, labour legislation, the role of the Church, the rise and content of the separatist ideology, the evolution of revolutionary ideas, violence, the role of association and clubs. (The course will be given mostly in English, but a reading knowledge of French is required). PROFESSOR JEAN-LOUIS ROY AND STAFF

157-203D. GEOGRAPHIE DU QUEBEC. (6 crédits.) (Ce cours ne sera pas donné en 1973-74.) Cependant les étudiants désireux de suivre un cours consacré à la géographie du Québec peuvent s'inscrire au cours 183-309B, cours offert conjointement par le Département de Géographie et le Centre d'Etudes canadiennes-françaises.

157-226A. INTRODUCTION A LA VIE POLITIQUE QUEBECOISE. (3 crédits.) Une introduction à la vie politique québécoise à travers l'étude des institutions des idéologies et des comportements politiques. Une attention particulière sera accordée à la structure et aux changements dans le système politique québécois. PROFESSEUR ANDRE BERNARD

157-300D. HISTOIRE CULTURELLE DU QUEBEC. (6 crédits.) Introduction générale (18e-20e siècle). Les courants d'idées: impact de la pensée révolutionnaire française et américaine, signification culturelle du parlementarisme, stratégie progressiste et laïque des notables, réaction cléricale après 1837-38, culture urbaine de la fin du 19e siècle. La diffusion des idées: apparition et impact de l'imprimerie, du journalisme; les relais de communication d'idées: voyages hors et vers le Québec, auberges, tavernes, associations, Instituts canadiens et lieux de rendez-vous. Travaux pratiques au choix des participants.
PROFESSEUR YVAN LAMONDE

157-301A. HISTOIRE DE L'EDUCATION AU QUEBEC. (3 crédits). Ce cours, donné en collaboration avec la Faculté des Sciences de l'Education, traite de l'histoire de l'éducation au Québec depuis la Confédération, y compris toutefois une brève étude de l'éducation à l'époque de la Nouvelle-France, et avant la Confédération. (Ce cours ne sera pas donné en 1973-74.)

157-304A. (Economics 154-304A.) LE DEVELOPPEMENT ECONOMIQUE DU QUEBEC. (3 crédits; donné en français). Le développement économique du Canada et l'économie du Québec. Attention plus particulière accordée aux industries primaires. (Ce cours ne sera pas donné en 1973-74.)

157-316A. QUEBEC ET L'AMERIQUE DU NORD. (3 crédits.) Ce cours tentera de répondre à la question suivante: dans quelle mesure et de quelle façon le Québec est-il, malgré sa spécificité culturelle, une communauté nord-américaine? En 1973, les principaux thèmes étudiés seront les suivants: les freaks, la contestation, la violence, la drogue, la jeunesse.
PROFESSEUR DANIEL LATOUCHE

157-336B. QUEBEC ET LE CANADA. (3 crédits.) Comment les Canadiens anglais et les Québécois francophones se perçoivent-ils mutuellement? Existe-t-il des stéréotypes et des images communes? Quelles sont les principals différences culturelles entre les deux groupes? Comment la Révolution tranquille a-t-elle été perçue au Canada? Quelles sont les perspectives d'avenir envisagées par les deux groupes? PROFESSEUR EDOUARD CLOUTIER

157-370D. LIVRES ET SOCIETE QUEBECOISE. (6 crédits.) Travaux pratiques: problèmes actuels de la société canadienne-française. Ce séminaire de recherche est consacré à l'analyse des divers phénomènes socio-culturels qui se rapportent à l'histoire de l'édition, de l'importation

et de la distribution du livre au Québec entre 1820 et 1939. L'analyse sectorielle et quantitative sera privilégiée.
PROFESSEUR JEAN-LOUIS ROY

157-401A. QUEBEC — ETATS-UNIS. (3 crédits; *Prérequis:* Histoire 202D, 302D, 303D, FCSP 201D et l'autorisation du professeur; donné en français). Etude de l'influence des Etats-Unis sur la société canadienne-française au Québec; plus particulièrement dans le domaine des idées et de la culture, à partir de 1762. La période contemporaine (à partir de 1867) fera l'objet d'une attention particulière. (Ce cours ne sera pas donné en 1973-74.)

157-406B. CULTURE ET CONTRE-CULTURE POLITIQUE AU QUEBEC. Les origines et l'évolution récente de la culture traditionnelle au Québec. L'apparition de la contre-culture, ses protagonistes, son contenu. La contre-culture a-t-elle été récupérée par le système? La libération individuelle face à la libération collective. (3 crédits.)
PROFESSEUR DANIEL LATOUCHE

157-407B. LITTERATURE FRANCOPHONE COMPAREE: QUEBEC, ANTILLES, AFRIQUE. Historique et analyse socio-culturelles des principaux mouvements littéraires; étude intensive d'œuvres capitales dans les genres poétique, romanesque et théâtral; définition de l'unité de ces littératures dans une esthétique post-européenne. (3 crédits.)
PROFESSEUR MAX DORSINVILLE

157-411B. QUEBEC ET CANADIENS-FRANÇAIS. Séminaire de recherche. (3 crédits; *Prérequis:* Hist. 202D, 302D, 313D, ou FCSP 201D ou 401A ou autorisation du professeur.) Etude historique de l'évolution des communautés francophones au Canada, à l'extérieur du Québec et des relations entre ces communautés francophones et la société québécoise.
PROFESSEUR JEAN-LOUIS ROY
PROFESSEUR CARMAN MILLER

157-414B. (Economics 154-414B). L'ECONOMIE DU QUEBEC DANS SON CONTEXTE NORD-AMERICAIN. (3 crédits; donné en français.) Etude des structures et des politiques et des forces économiques du Québec dans leur contexte nord-américain. (Ce cours ne sera pas donné en 1973-74.)

157-470D. THEORIES DES COMMUNICATIONS. Histoire et sociologie des media. Recherches comparées et appliquées au Québec; travaux pratiques mettant à contribution l'acquis théorique et concernant l'évolution des media (téléphone, radio, TV, satellites, journaux, affichage), la publicité, la mode, etc... (6 crédits.)
PROFESSEUR YVAN LAMONDE
PROFESSEUR JACQUES LANGUIRAND

157-480D. LA VILLE. (6 crédits; *prérequis:* Histoire 202D ou l'équivalent et l'autorisation du professeur.) Cours offert conjointement par le Centre d'Etudes canadiennes-françaises et le département d'Histoire. Les travaux les plus importants sur l'émergence, la croissance des villes, leurs fonctions et liaisons avec l'arrière-pays, la vie sociale et l'organisation politique en milieu urbain seront utilisés pour aborder l'étude de Montréal au milieu du XIXe siècle. Les recherches des étudiants seront intégrées à un dossier cumulatif.
PROFESSEUR LOUISE DECHENE
PROFESSEUR JEAN-LOUIS ROY

157-490B. DEVELOPPEMENT DU SYNDICALISME AU QUEBEC DEPUIS LA GUERRE. Analyse du développement des syndicats ouvriers au Québec depuis la guerre avec insistance sur l'impact social et les fondements idéologiques de leurs attitudes et comportements. (3 crédits.)

Courses Offered Jointly by the French Canada Studies Program and Departments

126-264D. HISTOIRE DE LA CIVILISATION QUEBECOISE. (6 crédits.) Cours offert conjointement par le Centre d'Etudes canadiennes-françaises et le Département de langue et de littérature françaises. Etude des principaux éléments de l'avancement idéologique, culturel et social au Canada français et leur influence sur la littérature.
PROFESSEUR JEAN-PIERRE BOUCHER

183-309B. GEOGRAPHY OF QUEBEC. (3 credits.) A geographical interpretation of selected social, economic and political problems of contemporary Quebec; ethnicity, demography, urbanization, regional disparities, economic marginality, with the purpose of segregating elements unique to Quebec from the more universal aspects that pervade them.
PROFESSOR WADDELL AND STAFF

101-323D. FRENCH CANADA FROM THE 17TH CENTURY TO THE MIDDLE OF THE 19TH CENTURY. (6 credits; *Prerequisite:* History 101-202D or consent of instructor.) This course will approach the economic and social history of New France and pre-industrial Quebec as a case study for problems in colonial policies, population movements, rural economy, commercial capitalism, social stratification, collective attitudes and institutional change.
PROFESSOR LOUISE DECHENE

101-403D. HISTOIRE REGIONALE, SOCIALE ET CULTURELLE DU QUEBEC. (6 crédits; *prérequis:* Histoire 101-333D ou l'autorisation du professeur; donné en français.) Etude du développement de la société québécoise depuis 1867. Retracer la signification des comportements et des idées nées dans un climat physique, spirituel et déterminé, tel est l'objectif de ce cours. PROFESSEUR JEAN-LOUIS ROY

126-436D. EVOLUTION DES IDEES AU QUEBEC AU XIXe SIECLE. (6 crédits) Les grands courants idéologiques du XIXe siècle et leur constante influence sur la littérature de cette époque: le voltairianisme, le libéralisme, grandeur et décadence des "Rouges", Tardivel ou l'ultramontanisme, Buies ou la libre pensée, etc.

126-442D. HISTOIRE DE LA LANGUE FRANÇAISE AU CANADA. (6 crédits.) Cours donné conjointement par le Département de langue et de littérature françaises, le Centre d'Etudes canadiennes-françaises et le Département de linguistique. Etude des origines du franco-canadien dans les dialectes français des XVIe et XVIIe siècles. Description du parler canadien au XVIIIe siècle. Evolution du franco-canadien après 1760. Description du "québécois" contemporain.

Ce cours est organisé en séminaire de recherches. Après une période d'initiation, l'étudiant fera un travail personnel portant sur un aspect particulier et précis, par exemple: la prononciation à la fin du XVIIIe siècle, le vocabulaire parlementaire en 1792, les anglicismes dans la Gazette de Québec en 1765-1770.

Courses Given by Departments

ANTHROPOLOGY

151-344A. ETHNOLOGY OF NEW FRANCE.

ARCHITECTURE

301-204B. HISTORY OF ARCHITECTURE IN CANADA. *(Prerequisite:* 301-102B.)

ECONOMICS

154-200D. BASIC PREREQUISITE — PRINCIPLES OF ECONOMICS.
154-304D. CANADIAN ECONOMIC POLICY.
154-306D. LABOUR ECONOMICS AND INSTITUTIONS.
154-311D. NORTH AMERICAN ECONOMIC DEVELOPMENT.
154-426D. LABOUR ECONOMICS.

FRENCH

126-227A, 126-228B. INTRODUCTION A LA LITTERATURE QUEBECOISE.
126-229D. INITIATION A LA LITTERATURE QUEBECOISE
126-329D. LE ROMAN QUEBECOIS CONTEMPORAIN.
126-333A. LE THEATRE QUEBECOIS.
126-334B. LE CINEMA QUEBECOIS.
126-361D. ROMAN QUEBECOIS I
126-364D. LA POESIE QUEBECOISE.
126-432D. LA POESIE QUEBECOISE CONTEMPORAINE.
126-461D. ROMAN QUEBECOIS II
126-462D. LES ESSAYISTES QUEBECOIS: EXPLOSION DE LA PENSEE DEPUIS BORDUAS.
126-492B. SEMINAIRE SPECIALISE EN LITTERATURE QUEBECOISE.

POLITICAL SCIENCE

160-211D. INTRODUCTION TO COMPARATIVE GOVERNMENT.
160-320A. CANADIAN POLITICAL PROCESS (I).
160-321B. CANADIAN POLITICAL PROCESS (II).
160-341A. THE DEVELOPMENT OF CANADA'S FOREIGN POLICY.
160-342B. THE ISSUE, CONCEPTS AND PROCESSES OF MODERN CANADIAN EXTERNAL RELATIONS.
160-415B. POLITICAL PARTIES.

SOCIOLOGY

166-E21A. INTRODUCTION TO SOCIOLOGY.
166-223B. SOCIAL STRATIFICATION.

ARTS

166-224B. CANADIAN SOCIETY.
166-217A. MASS COMMUNICATIONS.
166-217B. SOCIAL ASPECTS OF MASS COMMUNICATIONS.
166-326B. SOCIOLOGICAL ASPECTS OF POLITICAL BEHAVIOUR.
166-435A. SOCIOLOGY AND POPULAR CULTURE.

GEOGRAPHY

183-301D. GEOGRAPHY OF CANADA.
181-336D. INDIGENOUS PEOPLES OF NORTH AMERICA.

CENTRE FOR EAST ASIAN STUDIES

3434 McTavish Street
Tel: 392-4280; 392-4582

General Information

The Centre for East Asian Studies offers an interdisciplinary program focusing of China and Japan. The courses included in the East Asian Studies program are given in the departments of Anthropology, East Asian Languages and Literatures, Economics, Geography, History, Political Science and Religious Studies, and Sociology. These courses are listed below.

The program has been structured to accommodate general students who wish to acquire a basic knowledge of East Asia as well as those students who desire to specialize in the field. Requirements for the Major Program and the Honours Program currently offered are listed below.

Major in East Asian Studies

(In conjunction with the Department of History)

The requirements for a Major in East Asian Studies consist of the following: One compulsory course (History 208D) plus forty-eight credits (or the equivalent) drawn from the course listings in East Asian Studies and the Department of East Asian Languages and Literatures. These forty-eight credits must be spread among more than one department. Students are encouraged to enrol in the language sequence.

Enrolment in the East Asian Studies Major program will take place at the Centre for East Asian Studies just prior to university registration. The date for enrolment will be announced by September.

Inquiries regarding the Major in East Asian Studies should be addressed to Elaine Rubin, Centre for East Asian Studies, 392-4280.

Honours in East Asian Studies

(In conjunction with the Department of History)

The Honours Program in East Asian Studies will consist of a total of 60 credits. Of these 60 credits, the following 30 credits are compulsory: History 208D, 6 credits; a minimum of three levels of Chinese or Japanese language study, 18 credits; History 497D, 6 credits. In addition to these required courses, students must complete 30 additional credits selected from the East Asian Studies course listing. Modifications may be considered by the Honours adviser.

Since this is a multidisciplinary program, students will be encouraged to elect courses in more than one discipline.

Enrolment in the East Asian Studies Honours Program will take place just prior to university registration. The date and place of this enrolment will be announced in early September.

Inquiries regarding the Honours Program in East Asian Studies should be addressed to Professor E. Laffey in the Department of History, Telephone 392-5187.

Course Descriptions

151-213B. SOCIAL INSTITUTIONS OF THE EARLY CIVILIZATIONS. (3 credits. See entry under Anthropology Dept.) (Not offered 1973-74.) PROFESSOR TRIGGER

151-330B. PEOPLES OF EAST ASIA. (3 credits. See entry under Anthropology Dept.) (Not offered 1973-74.) PROFESSOR IKAWA-SMITH

151-331B. PRE-HISTORY OF EAST ASIA. (3 credits. See entry under Anthropology Dept.) PROFESSOR IKAWA-SMITH

117-E10D. FIRST LEVEL CHINESE. (6 credits. See entry under East Asian Languages and Literatures.) MRS. WANG

117-E11D. INTRODUCTION TO CONVERSATIONAL CHINESE. (6 credits. See entry under East Asian Lanuguages and Literatures.) MISS CHANG

117-E20D. SECOND LEVEL CHINESE. (6 credits. See entry under East Asian Languages and Literatures.) MISS CHANG

117-201D. INTRODUCTION TO CHINESE LITERATURE. (6 credits. See entry under East Asian Languages and Literatures.) (Not offered 1973-74.) MRS. WANG

117-300D. THIRD LEVEL CHINESE. (6 credits. See entry under East Asian Languages and Literatures.) MISS CHANG

117-400D. FOURTH LEVEL CHINESE. (6 credits. See entry under East Asian Languages and Literatures.) MRS. WANG

154-315B. ECONOMIC DEVELOPMENT OF CHINA. (3 credits. See entry under Economics Dept.) PROFESSOR WRIGHT

154-341B. THE ECONOMIC HISTORY OF CHINA AND JAPAN, MAINLY FROM 1840-1949. (3 credits. See entry under Economics Dept.) PROFESSOR LOUTFI

154-421D. COMPARATIVE ECONOMIC SYSTEMS. (6 credits. See entry under Economics Dept.)

101-208D. THE DEVELOPMENT OF EAST ASIAN CIVILIZATION. (6 credits. See entry under History Dept.) PROFESSORS BAMBA AND BURCHILL

101-308D. HISTORY OF CHINA. (6 credits. See entry under History Dept.) PROFESSOR LAFFEY

101-318D. A HISTORY OF JAPAN. (6 credits. See entry under History Dept.) PROFESSOR BAMBA

101-328D. WAR AND DIPLOMACY IN EAST ASIAN SOCIETIES. (6 credits. See entry under History Dept.) (Not offered 1973-74.) PROFESSOR BAMBA

101-408A. MODERN CHINA, 1840-1949. (3 credits. See entry under History Dept.) (Not offered 1973-74.) PROFESSOR LAFFEY

101-418D. PROBLEMS OF MODERNIZATION IN JAPANESE HISTORY. (6 credits. See entry under History Dept.) PROFESSOR BAMBA

101-428D. CONTINUITY AND CHANGE IN TWENTIETH CENTURY CHINA. (6 credits. See entry under History Dept.) PROFESSOR BURCHILL

101-438B. SOCIAL ORGANIZATION IN MODERN CHINA. (3 credits. See entry under History Department.) (Not offered 1973-74.) PROFESSOR LAFFEY

101-448B. JAPANESE INTELLECTUAL HISTORY. (3 credits. See entry under History Dept.) (Not offered 1973-74.) PROFESSOR BAMBA

101-497D. TRADITION AND CHANGE IN CHINA. (6 credits. See entry under History Dept.) PROFESSORS BURCHILL AND HSIEH

101-498D. SEMINAR: PROBLEMS IN MODERN JAPANESE HISTORY. (6 credits. See entry under History Dept.) PROFESSOR BAMBA

160-323B. POLITICS AND GOVERNMENT IN EAST ASIA. (3 credits. See entry under Political Science Dept.) (Not offered 1973-74.) PROFESSOR NOUMOFF

160-332D. NON-WESTERN POLITICAL PHILOSOPHY. (6 credits. See entry under Political Science Dept.) (Not offered 1973-74.) PROFESSOR NOUMOFF

160-349D. CONTEMPORARY INTERNATIONAL SYSTEMS AND FOREIGN POLICY: ASIA. (6 credits. See entry under Political Science Dept.) PROFESSOR NAYAR

160-422B. SEMINAR ON ASIAN POLITICS. (3 credits. See entry under Political Science Dept.) PROFESSOR NAYAR

183-312B. THE GEOGRAPHY OF CHINA. (3 credits. See entry under Geography Dept.) PROFESSOR VEILLEUX

260-114D. INTRODUCTION TO WORLD RELIGIONS. (6 credits. See entry Religious Studies.) PROFESSOR STEVENSON

260-451D. THE HINDU AND BUDDHIST TRADITIONS. (6 credits. See entry under Religious Studies.) PROFESSOR STEVENSON

166-240A. CORPORATIONS AND SOCIETY. (3 credits. See entry under Sociology Dept.) PROFESSOR EHRENSAFT

166-372B. SOCIAL REVOLUTION. (3 credits. See entry under Sociology Dept.) PROFESSOR DIXON

166-451B. IMPERIALISM. (3 credits. See entry under Sociology Dept.) PROFESSOR DIXON

CLASSICS (114)

Stephen Leacock Building, Room 517, Telephone 392-5227.

Note to College Level Students

The following courses offered by this Department will be open to College Equivalent Students in 1973-1974:

Non-Language Courses: 114-200D, 201D, 203A, 205D, 207A, 208B, 300B, 304B, 306B, 309A.

Language Courses: 114-210D, 211D, 212D, 220D.

Literature Courses: Latin: 114-311A, 312B, 313A, 314B.

Literature Courses: Ancient Greek: 114-321A, 322B, 323D.

In addition, College level students may apply for permission to take certain other courses given by the Department. Apply to the Chairman.

Classics for the Specialist

The Department's honours programs are designed to train students who wish to pursue careers in Classics, Ancient History and Archaeology. Major programs give rather less intensive training and provide a useful background for students interested in the liberal arts or the social sciences.

Classics for the Non-Classicist

The Department offers numerous courses — many of which do not require a knowledge of Ancient Greek or Latin — designed for students in other programs such as Anthropology, Art History, English, Linguistics, Modern Languages, Philosophy, Political Science, Religious Studies.

Students of languages, literature and history may in addition be interested in the introductory language courses offered by this Department, which enjoys an international reputation as a pioneer in this field.

The very nature of the subject itself — covering as it does not only the language and literature, but also the history, archaeology, art, religion, philosophy, politics and economics of an entire civilization — can provide the student with a satisfying and relevant background to a wide range of studies.

Major Programs

NOTE: The following outlines represent *Departmental* requirements only. The attention of students is directed to the regulations of *Faculty* concerning *Programs*. Each student's program must also satisfy the regulations imposed by the Faculty of Arts.

MAJOR IN CLASSICS (ANCIENT GREEK) (See the Chairman, L517, 392-5227)

Minimum Course Requirements

24 Credits in Ancient Greek Literature, including Classics 114-321A and 323D.

18 Credits in Non-Language Courses approved by the Department of Classics.

6 Credits Classics 114-480D (Optional).

Classics 114-210D *or* 211D *or* 212D (which must be taken unless the student can prove proficiency in Latin).

MAJOR IN CLASSICS (LATIN) (See the Chairman, L517, 392-5227)

Minimum Course Requirements

24 Credits in Latin Literature, including Classics 114-312B and 313A.

18 Credits in Non-Language Courses approved by the Department of Classics.

6 Credits Classics 114-480D (Optional).

Classics 114-220D (which must be taken unless the student can prove proficiency in Ancient Greek.)

MAJOR IN CLASSICS (ANCIENT GREEK AND LATIN) (See the Chairman, L517, 392-5227)

Minimum Course Requirements

12 Credits in Intermediate Ancient Greek Literature, including Classics 114-321A and 323D.

6 Credits in Senior Ancient Greek Literature.

12 Credits in Intermediate Latin Literature, including Classics 114-312B and 313A.

6 Credits in Senior Latin Literature.

18 Credits in Non-Language Courses approved by the Department of Classics.

6 Credits Classics 114-480D (Optional).

MAJOR IN CLASSICS (CLASSICAL CIVILIZATION) (See G. M. Woloch, L527, 392-5220)

Minimum Course Requirements

54 Credits drawn from the following:

Classics 114-210D *or* 211D *or* 212D *or* 220D *or* 221A (which must be taken unless the student can prove proficiency in Ancient Greek or Latin).

Classics 114-200D.

Classics 114-201D.

All other Courses offered by the Department of Classics (with due regard to pre-requisites) which do not require a knowledge of Ancient Greek or Latin.

NOTES:

1. Students who wish to substitute for Non-Language Courses a continuation sequence of courses in the original Ancient Greek or Latin may do so.
2. Students may substitute for courses offered in the Department of Classics courses offered by other Departments, subject to the approval of the Department of Classics.
3. *This Program does NOT lead to post-graduate work in Classics.*

MAJOR IN CLASSICS (CLASSICAL HISTORY AND ARCHAEOLOGY) (See J. M. Fossey, L529, 392-5335)

Minimum Course Requirements

24 Credits in Archaeology Courses offered by the Department of Classics (i.e. Classics 114-205D and 305D and 405D and 406B and 409A).

18 Credits in Ancient History (i.e. Classics 114-201D and 301D and 303D).

6 Credits in Classics in Translation (i.e. drawn from Classics 114-300B, 207A, 208B).

6 Credits in a course or courses chosen with the approval of the Department of Classics.

NOTE: *This Program does NOT lead to post-graduate work in Classics,* although it could qualify a student for research in various aspects of Roman and European Archaeology.

MAJOR IN CLASSICS (CLASSICAL AND HELLENIC STUDIES) (See A. Farmakides, L516, 392-5222)

Minimum Course Requirements

Classics 114-200D *or* 221A.

Classics 114-235D (which must be taken unless the student can prove proficiency in Modern Greek).

Classics 114-210D *or* 211D *or* 212D.

12 Credits in Ancient Greek Literature.

12 Credits in Modern Greek Literature.

12 Credits in Latin Literature.

12 Credits in Non-Language Courses approved by the Department of Classics.

MAJOR IN CLASSICS (ANCIENT AND MODERN GREEK) (See A. Farmakides, L516, 392-5222)

Minimum Course Requirements

Classics 220D *or* 221A.

Classics 235D (which must be taken unless the student can prove proficiency in Modern Greek).

12 Credits in Intermediate Ancient Greek Literature.

6 Credits in Senior Ancient Greek Literature.

18 Credits in Modern Greek Literature.

18 Credits in Non-Language Courses approved by the Department of Classics.

MAJOR IN CLASSICS AND LINGUISTICS (See the Chairman, L517, 392-5227)

1. *Classics:*

27 credits.

The student will select a continuation sequence in either Ancient Greek or Latin. Six credits must be taken in the language not selected.

2. *Linguistics:*

27 credits.

104-200A. INTRODUCTION TO THE STUDY OF LANGUAGE.

104-201B. INTRODUCTION TO LINGUISTICS.

104-400A. THEORY AND METHODS OF HISTORICAL LINGUISTICS.

104-401B. SEMINAR IN HISTORICAL LINGUISTICS.

PLUS 15 Credits in other Linguistics Courses selected with due regard to prerequisites.

Honours Programs

HONOURS IN CLASSICS (See the Chairman, L517, 392-5227)

Minimum Course Requirements

24 Credits in Ancient Greek Literature, including Classics 114-321A and 323D.

24 Credits in Latin Literature, including Classics 114-312B and 313A.

24 Credits in Non-Language Courses.

6 Credits Classics 114-480D (Comprehensive Honours Tutorial Course).

NOTES:

1. The Non-Language Courses may be chosen from among courses given within the Department, or courses offered by other Departments, chosen with the permission of the Department of Classics.
2. Classics 114-480D will appear as a sixth 6-credit course in the student's final year record (i.e., it will be a sixteenth 6-credit course in the fifteen 6-credit course BA program). Every Honours student will be assigned to a Tutor upon entry into the Honours Program. The Tutor will meet with the student regularly during Term, and will assign essays or other work on subjects related to the course work on which the student is engaged. The Tutor may also, where practicable, assign summer reading. It will also be the Tutor's function to assist the student in selecting a suitable sequence of courses. *Honours standing in Classics 114-480D will be a requirement for the Honours degree.*

HONOURS IN CLASSICS (CLASSICAL HISTORY AND ARCHAEOLOGY) (See J. M. Fossey, L529, 392-5335)

Course Requirements

24 Credits in Ancient Greek or Latin.

12-18 Credits in the language not chosen above.

36-42 Credits in Archaeology and Ancient History courses offered by the Department of Classics.

6-18 Credits in other courses.

6 Credits Classics 114-480D (Comprehensive Honours Tutorial Course).

TOTAL: 90 Credits plus 6 (480D).

NOTES:

1. For Classics 114-480D, please see "Honours in Classics", Note 2.
2. Students proposing to obtain an MA in Classics at McGill are advised to gain 18 credits in the second Classical language, and to consult the Department for the precise requirements for the MA in Classics.

HONOURS IN CLASSICS (CLASSICAL AND HELLENIC STUDIES) (See A. Farmakides, L516, 392-5222)

Minimum Course Requirements

Classics 114-220D or 221A.

Classics 114-235D.

Classics 114-210D or 211D or 212D.

18 Credits in Ancient Greek Literature.

18 Credits in Modern Greek Literature.

18 Credits in Latin Literature.

18 Credits in Non-Language Courses.

NOTES:

1. Classics 235D must be taken unless the candidate has reached a standard sufficient to satisfy the Department that (s)he is proficient in Modern Greek.
2. The Non-Language Courses may be chosen from among courses given within the Department, or courses offered by other Departments, chosen with the permission of the Department of Classics.

JOINT HONOURS PROGRAMS

All Joint Honours Programs must have the approval of both Departments concerned. For Classics, see the Chairman, L517, 392-5227.

A formal arrangement exists for the following program:

JOINT HONOURS IN ANTHROPOLOGY AND CLASSICAL ARCHAEOLOGY (See J. M. Fossey, L529, 392-5335)

The Departments of Anthropology and Classics offer the following program leading to a joint honours B.A. degree:

1. Students must complete 33 credits in Anthropology and 39 credits in Classics, for a total of 72 credits. The remaining 18 credits may be chosen from among offerings of other Departments at McGill, but these electives should be chosen after consultation with advisers in the Anthropology and Classics Departments.

NOTE: This program does NOT lead to post-graduate work in pure Classics, but it may qualify the student for post-graduate work in Archaeology and Prehistory.

2. *Anthropology Requirements:*

9 Credits consisting of 3 of the following five "core courses": Anthropology 151-354A, 355B, 356B, 357A, Linguistics 104-230A.

3 Credits — Anthropology 151-358B.

6 Credits consisting of 2 advanced level courses (i.e. with a 400 listing).

12 Credits consisting of any other 4 Anthropology courses.

3 Credits consisting of an independent research course (462A or 463B) in the U3 year. The project will be based upon the student's interdisciplinary training in Anthropology and Classical Archaeology. The project will last for the entire year, with registration for one half course in Anthropology and one half course in Classics.

TOTAL: 33 credits.

3. *Classics Requirements:*

18-24 Credits in Archaeology courses.

6-12 Credits in Ancient Greek OR Latin.

6 Credits in Ancient History.

3 Credits in an independent research course.

TOTAL: 39 credits.

Course Descriptions

NON-LANGUAGE COURSES

114-200D. GREEK CIVILIZATION. (6 Credits.) The subject considered in all its aspects (art, archaeology, philosophy, literature, history, economics, politics, etc.). Original sources will be read in translation. **NOTE:** Part of this course will be modular.
PROFESSORS SNIDER AND WOLOCH

114-201D. ANCIENT HISTORY. (6 Credits.) A survey of Greek and Roman history from the origins to the beginning of the Middle Ages. PROFESSOR GORDON

114-203A. INTRODUCTION TO GREEK MYTHOLOGY. (3 Credits.) A survey of the myths and legends of Ancient Greece. PROFESSOR SNIDER

114-205D. INTRODUCTION TO CLASSICAL ARCHAEOLOGY, METHODS AND TECHNIQUES. (6 Credits.) Concerned essentially with the application of modern techniques to Classical Archaeology, and its connections with contemporary Europe. PROFESSOR FOSSEY

114-207A. CLASSICS IN TRANSLATION (THE CLASSICAL TRADITION). (3 credits.) Each student will select a single author or a field in which to specialize within the framework of a general discussion of Greek Literature from Homer to Aristotle. PROFESSOR DEARDEN

114-208B. ROMAN LITERATURE AND SOCIETY. (3 Credits.) Life and Society in the Roman Empire as reflected in contemporary authors of varying genres (epic, history, philosophy, satire and the novel). PROFESSOR SNIDER

114-300B. GREEK DRAMA AND THE THEATRE. (3 Credits.) A study of the Greek dramatists, both tragic and comic, in the light of their plays, with special emphasis on the theatrical techniques of the authors and the means of production in the Greek theatre.
PROFESSOR DEARDEN

114-302B. PROBLEMS IN GREEK MYTHOLOGY. (3 Credits.) A research-orientated course in which students work on projects dealing with specific mythological themes, either as developed in antiquity, or as they have been used in literature, art and music after the end of antiquity. **NOTE:** Students who have not taken Classics 114-203A are asked to consult the instructor in advance of registration. PROFESSOR SCHACHTER

114-303D. ROMAN HISTORY. (6 Credits.) The political and social development of the Roman state from its origins to the time of Augustus, with particular attention to the collapse of the Republic and the founding of the Principate. PROFESSOR WOLOCH

114-304B. GREEK POLITICAL IDEAS. (3 Credits.) The relations of politics, law and moral values in Greek political writings. Readings in translation from the dramatists and historians, Plato and Aristotle, and the fragments of the pre-Socratics, Epicurus and the early Stoics.
PROFESSOR SILVERTHORNE

114-305D. GREEK AND ROMAN ARCHAEOLOGY. (6 Credits; *Prerequisite:* Classics 205D or permission of the Department.) The archaeology of the Greek and Italian peninsulas and related areas from Neolithic times down to the Hellenistic-Roman period.
PROFESSOR FOSSEY

114-306B. THE ROMAN CITY IN CIVILIZATION. (3 Credits.) Discussion of the geography, urban planning, buildings and social conditions of European cities in the Roman Empire. Why have some of them survived until today and others not? PROFESSOR WOLOCH

114-309A. THE GREEK AND ROMAN NOVEL (IN TRANSLATION). (3 Credits.) A study of the ancient novel, including Petronius, *The Satyricon,* Apuleius, *The Golden Ass* and Longus, *Daphnis and Chloe.* PROFESSOR SNIDER

114-406B. HOMERIC ARCHAEOLOGY. (3 Credits.) The relation of the Greek oral traditions to the results of archaeological investigation. The course is aimed both at classicists who want to see another dimension to Homer, and at archaeologists with an interest in societies having an oral tradition. Material will be so organized that the course can be taken with profit both by those who know Greek and by those who do not. **NOTE:** This course is not suitable for those taking Classics 305D. PROFESSOR FOSSEY

114-409A. ROMAN BRITAIN. (3 credits; *Prerequisites:* Classics 114-205D and 114-305D or permission of the Department.) The Archaeology and History of Britain as a province of the Roman Empire, including the Iron Age Background and the decay of Roman culture in the island during the fifth century AD. Particular attention will be given to the evidence of inscriptions. PROFESSOR FOSSEY

114-478B. ROMAN COMEDY AND HUMOUR. (3 Credits; *Prerequisite:* Permission of the instructor.) An analysis of selected plays of Plautus and Terence in the light of Bergson and Freud; their influence on European drama. PROFESSOR TOMASZUK

LANGUAGE COURSES

114-210D. LATIN: FIRST YEAR. (6 Credits; *Prerequisite:* Matriculation in Latin or its equivalent.) Reading from two authors and sight translation. PROFESSOR TOMASZUK

114-211D. INTRODUCTORY LATIN. (6 Credits.) For students who have not matriculated in Latin. Intensive course designed to bring students to the same level of reading ability as those who have taken *Latin: First Year*. **NOTE:** This class meets four times per week.
PROFESSOR McCULLAGH

114-212D. INTERMEDIATE LATIN LANGUAGE. (6 Credits.) For students with previous training in Latin, but without matriculation or its equivalent. PROFESSOR SILVERTHORNE

114-220D. INTRODUCTORY ANCIENT GREEK. (6 credits.) For students who have not matriculated in ancient Greek. **NOTE:** This class meets four times per week.
PROFESSOR SCHACHTER

LITERATURE COURSES: LATIN

114-311A. INTERMEDIATE LATIN: POETRY. (3 credits; *Prerequisite:* Classics 114-210D or 211D or 212D or permission of the Department.) Readings in Vergil, *Georgics*.
PROFESSOR TOMASZUK

114-312B. INTERMEDIATE LATIN: POETRY. (3 credits; *Prerequisite:* As for 114-311A.) Vergil, *Aeneid*, Book 2. PROFESSOR McCULLAGH

114-313A. INTERMEDIATE LATIN: PROSE. (3 credits; *Prerequisite:* As for 114-311A.) Selections from Cicero's letters and philosophical works will be read. Some attention will be paid to the importance of Cicero's rôle in transmitting Greek philosophical ideas to the Middle Ages and beyond. PROFESSOR SNIDER

114-314B. INTERMEDIATE LATIN: PROSE. (3 credits; *Prerequisite:* As for 114-311A.) Selections of graded difficulty from various prose authors, including Caesar, Nepos and Livy.
PROFESSOR SNIDER

114-416D. SENIOR LATIN: ROMAN COMEDY. (6 credits; *Prerequisite:* Intermediate Latin Literature or permission of the Department.) Reading of Plautus, *Menaechmi* and *Amphitruo*, and Terence, *Andria*. Sources and influences. PROFESSOR TOMASZUK

114-451A/452B, 453A/454B, 455A/456B, 457A/458B, 459D. SENIOR LATIN READING COURSES. (A and B courses are 3 credits each; D course is 6 credits; *Prerequisite:* Permission of the Department.) Registration limited. PROFESSOR McCULLAGH AND STAFF

LITERATURE COURSES: ANCIENT GREEK

114-321A. INTERMEDIATE ANCIENT GREEK: PROSE. (3 Credits; *Prerequisite:* Classics 114-220D or permission of the Department.) Selections from Plato. PROFESSOR SILVERTHORNE

114-322B. INTERMEDIATE ANCIENT GREEK: PROSE. (3 credits; *Prerequisite:* As for 321A.) Readings in the Greek orators and other authors. PROFESSOR DEARDEN

114-323D. INTERMEDIATE ANCIENT GREEK: HOMER. (6 credits; *Prerequisite:* As for 321A.) Elements of Homeric grammar, prosody and metre; survey of the historical background; reading and translating of some relevant passages of the *Iliad* and the *Odyssey* with pertinent commentary and discussion. PROFESSOR VIVANTE (1st term)
PROFESSOR McCULLAGH (2nd term)

114-421A. SENIOR ANCIENT GREEK: HOMER. (3 credits; *Prerequisite:* Intermediate Ancient Greek or permission of the Department.) A survey of Homeric Poetry, with emphasis on its value as poetry. The reading of the text will be accompanied by references to the way in which Homer expresses basic ideas and gives us a full-scale representation of the world.
PROFESSOR VIVANTE

114-424D. SENIOR ANCIENT GREEK: GREEK TRAGEDY. (6 credits; *Prerequisite:* As for 421A.)
PROFESSOR DEARDEN

114-461A/462B, 463A/464B, 465A/466B, 467A/468B, 469D. SENIOR ANCIENT GREEK READING COURSES. (A and B courses are 3 credits each; D course is 6 credits; *Prerequisite:* Permission of the Department.) Registration limited. PROFESSOR McCULLAGH AND STAFF

SENIOR CLASSICS SEMINARS

One or more senior seminars may be given on subjects of interest to students and Faculty. For information concerning seminars for 1973-74, consult the Chairman (L517, 392-5227) in September.

114-441D/442D, 443A/444B, 445A/446B, 447A/448B. SENIOR CLASSICS SEMINARS. (A and B courses are 3 credits each; D courses are 6 credits each.) Registration limited.
PROFESSOR McCULLAGH AND STAFF

As of March 1973, the following three Seminars had already been allocated:

114-441D. SENIOR CLASSICS SEMINAR: SEMINAR IN GREEK EPIGRAPHY. (6 credits.) Registration limited. PROFESSORS FOSSEY, ROESCH, SCHACHTER

114-443A. SENIOR CLASSICS SEMINAR: SEMINAR IN NUMISMATICS. (3 credits.) Registration limited. An introduction to Greek and Roman Numismatics. Use will be made of the McGill coin collection.
PROFESSOR WOLOCH

114-445A. SENIOR CLASSICS SEMINAR: PAUSANIAS BOOK 9. (3 credits.) Registration limited. A reading of the text, with archaeological, epigraphic, historical and social commentary.
PROFESSORS FOSSEY, ROESCH, SCHACHTER

114-480D. COMPREHENSIVE HONOURS TUTORIAL COURSE FOR STUDENTS IN HONOURS PROGRAMS. (6 extra credits.)
STAFF

UNDERGRADUATE CLASSICS COURSES WHICH WILL NOT BE OFFERED IN 1973-74

NOTE: Many of these courses will be offered in 1974-75.

114-221A. ANCIENT GREEK FOR SPEAKERS OF MODERN GREEK.
114-235D. INTRODUCTORY MODERN GREEK.
114-301D. GREEK HISTORY.
114-315A. INTERMEDIATE LATIN LITERATURE: POETRY.
114-316B. INTERMEDIATE LATIN LITERATURE: POETRY.
114-317A. INTERMEDIATE LATIN LITERATURE: PROSE.
114-318B. INTERMEDIATE LATIN LITERATURE: PROSE.
114-319D. SENIOR LATIN LITERATURE: READINGS IN CAESAR AND HORACE ("ODES"); PROSE COMPOSITION.
114-335D. INTERMEDIATE MODERN GREEK.
114-400D. THE IDEA OF EPIC.
114-401A. HELLENISTIC HISTORY.
114-403A. MODERN GREEK HISTORY: FROM 1204 TO 1821.
114-404B. MODERN GREEK HISTORY: FROM 1821 TO 1945.
114-405D. REGIONAL STUDIES IN CLASSICAL ARCHAEOLOGY.
114-407D. LATER GREEK PHILOSOPHY.
114-411D. SENIOR LATIN LITERATURE: ROMAN HISTORIANS.
114-413D. SENIOR LATIN LITERATURE: ROMAN STOICISM AND EPICUREANISM.
114-414D. SENIOR LATIN LITERATURE: CICERO'S SPEECHES AND LETTERS.
114-415D. SENIOR LATIN LITERATURE: THE MIND OF ROME.
114-417D. SENIOR LATIN LITERATURE: ROMAN ELEGIAC POETRY.
114-418D. SENIOR LATIN LITERATURE: VERGIL'S "AENEID".
114-419D. SENIOR LATIN LITERATURE: LATIN OF THE SILVER AGE.
114-420D. SENIOR ANCIENT GREEK LITERATURE: GREEK COMEDY.
114-422B. SENIOR ANCIENT GREEK LITERATURE: HOMER.
114-423D. SENIOR ANCIENT GREEK LITERATURE: GREEK ORATORS.
114-425D. SENIOR ANCIENT GREEK LITERATURE: GREEK PHILOSOPHY.
114-426D. SENIOR ANCIENT GREEK LITERATURE: GREEK PHILOSOPHY.
114-427D. SENIOR ANCIENT GREEK LITERATURE: GREEK LYRIC POETRY.
114-428D. SENIOR ANCIENT GREEK LITERATURE: READINGS IN PLATO.
114-429D. SENIOR ANCIENT GREEK LITERATURE: GREEK HISTORIANS.
114-431A. SENIOR MODERN GREEK READING COURSE.
114-432B. SENIOR MODERN GREEK READING COURSE.
114-433D. SENIOR MODERN GREEK READING COURSE.
114-434D. SENIOR MODERN GREEK READING COURSE.
114-435D. INTERMEDIATE MODERN GREEK LITERATURE.
114-436D. SENIOR MODERN GREEK LITERATURE.
114-437D. PURIST MODERN GREEK.
114-471D. ROMAN IMPERIAL HISTORY.
114-473A. GREEK AND ROMAN RELIGIOUS IDEAS.
114-474B. GREEK RELIGIOUS PRACTICES.
114-477A. GREEK AND ROMAN LITERARY CRITICISM.

EAST ASIAN LANGUAGES AND LITERATURES (117)

3434 McTavish Street, Tel. 4280.

General Information

The Chinese language courses introduce both traditional characters as well as the simplified characters used in the People's Republic of China. Textbooks and teaching materials used include those published in China.

It is hoped that students majoring in East Asian Studies will enrol in the language courses in addition to any other students interested in learning the language.

In order to accelerate language proficiency and to approximate a "total immersion" approach, cultural activities are organized by the department and the students, including daily luncheons where conversation is conducted in Chinese only.

Course Descriptions

117-E10D. FIRST LEVEL CHINESE. (6 credits.) Introduction to the use of modern Chinese language (Mandarin), including instruction of basic grammar and patterns with more emphasis on speaking and pronunciation. Direct methods and tape recordings will be used for audio-lingual achievements. MRS. WANG

117-E11D. INTRODUCTION TO CONVERSATIONAL CHINESE. (6 credits.) This course is designed for students with some background in the Chinese written language, who wish to perfect their ability to speak Chinese. MISS CHANG

117-E20D. SECOND LEVEL CHINESE. (6 credits; *Prerequisite:* Chinese 117-E10D or Chinese 117-E11D or the equivalent.) A continuation of Chinese 117-E10D with more advanced study of Chinese language in both aspects of reading and conversation: grammar, vocabulary building and writing practice. Basic literary structures will be introduced, permitting the students to become familiar with the literature. MISS CHANG

117-201D. INTRODUCTION TO CHINESE LITERATURE. (6 credits; *Prerequisite:* Chinese 117-E10D or E11D or permission from the instructor; Not offered in 1973-74.) A survey of the historical background of Chinese literature and the evolution of literary forms and styles in Chinese from the Confucian period to modern times. MRS. WANG

117-300D. THIRD LEVEL CHINESE. (6 credits; *Prerequisite:* Chinese 117-E20D or the equivalent.) Based upon the literary level achieved in Chinese E20D, more advanced texts will be studies including original materials. Further examination of Chinese compounds and sentences with special emphasis on syntax explanation. MISS CHANG

117-400D. FOURTH LEVEL CHINESE. (6 credits; *Prerequisite:* Chinese 117-300D or the equivalent.) Emphasis is on reading skills and writing ability in addition to free discussion. Materials studied include original texts from Chinese literature, drama, government documents and newspapers.

NOTE: For students interested in studying Japanese, credits may be granted for courses taken at the Centre for Continuing Education.

ECONOMICS (154)

Stephen Leacock Building, Room 434,
Telephone 392-5239

Honours programs

All Honours students must be registered by the Departmental Honours Committee at the beginning of each year of their Honours program. An Honours student is not permitted to register for a general course where a parallel Honours course is offered. Honours students in economics are expected to take a minimum of 42 credits in approved economics courses over the three years of their program.

The Economics Honours program is offered to both B.A. and B.Com. students. There are two basic streams of study: 'economics' and economic history. The economics stream allows for specialization in the U3 year in various special fields in economics, such as labour, international trade, money and banking, development, etc.

U1 YEAR

Economics: 154-250D, 154-357D* (Mathematics 189-201A, B and 189-202A, B).

Economic History: 154-201D, 154-250D, 154-357D* (Mathematics 189-201A, B and 189-202A, B).

U2 YEAR

Economics: 154-350D, 154-352D, 154-357D* (Mathematics 189-245A and 189-246B).

Economic History: 154-350D, 154-352D, 154-357D*, one of 154-311D, 154-341A and 154-331A, 154-401D.

U3 YEAR

Economics: 154-450D.

Other Economics courses approved by the Honours Adviser.

( ) — Recommended optional course.

* — May be taken in U1 or U2.

Joint Honours

Joint Honours between Economics and various other departments in the Faculties of Arts, Science and Management exist. The requirements for such Joint Honours programs are in the process of revision. As a general rule, a Joint Honours involving Economics requires a minimum of thirty credits from approved courses in Economics. These include 154-250D, 154-350D, 154-352D and 154-357D.

All students who wish to begin (or continue) an Honours program *must* register with the Honours Committee in the Department of Economics prior to general registration in *each* of their university years.

The Majors Program 1973-1974: University I & II Students

The Majors Program in Economics is a planned sequence of courses designed to permit the student a degree of concentration in economics. It consists of 54 credits in courses approved by the Majors Committee of the Economics Department.

A student choosing a Major in Economics must take at least 36 credits of economics in addition to Economics 200D or its equivalent. The economics courses will be selected from the courses shown below.

A. **Prerequisite**

Economics 200D *or* its equivalent: Principles of Economics.

B. **Required Courses** (12 credits)

Economics 300A — Intermediate Microeconomics.

Economics 310B — Intermediate Macroeconomics.

Economics 317D — Economic Statistics, for Arts students

or

Economics 307D or Management 280-271A, 272B — Business Statistics, for Commerce students.

C. **Economics Elective Courses:** At least 24 credits from other 200, 300 and 400 level courses.

D. **Other Approved Courses:**

In addition to the minimum of 36 credits in Economics, the student will choose a total of 18 credits from *two* of the following fields:

Anthropology
Economics
French Canada Studies
Geography
History
Mathematics
Philosophy
Political Science
Psychology
Sociology

All students who wish to begin (or continue) a Major *must* register with the Majors Committee in the Department of Economics prior to general registration in *each* of their university years. Further information may be obtained from Professor C. Green, Leacock 828, 392-5217.

Course Descriptions

Supplementary Information: This calendar is prepared early in the year and so is likely to need modification by the time the academic year begins. A mimeographed supplement is available at the departmental office in September and should be consulted prior to registration with the Honours or Major advisers.

154-200D or 154-250D is prerequisite to all upper level courses in Economics except those for which other provision is made in the course descriptions below. Except by special permission of the Department* only those students who have taken 154-200D or 154-250D may select Economics for continuation. Honours students will take 154-250D.

*Such permission will be granted only to students who select an approved program of courses in Economic History.

154-200D. PRINCIPLES OF ECONOMICS. (6 credits.) Given in three sections with varied patterns of lectures and conferences. An introduction to the study of economics, including price theory, national income determination, money and banking, international economic relations, and economic policy. PROFESSORS GRANTHAM, DAVENPORT AND NAYLOR

154-201D. THE INTERNATIONAL ECONOMY SINCE 1850. (6 credits; *Prerequisites:* Open to students who either have completed 154-211D or have completed or registered for 154-200D or 154-250D; Others may be admitted by consent of instructor.) The effect of economic change in Britain, France, Germany and the United States on their role in the world economy and on the economic relations between nations. PROFESSOR WRIGHT

154-205A. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY I. (3 Credits; *Prerequisite:* 154-200D or consent of instructor.) Application of economic reasoning to practical problems and policy. Topics vary from year to year. PROFESSOR KIERANS

154-206B. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY II. (3 credits; *Prerequisite:* 154-205A; Not given 1973-74.) Application of economic reasoning to practical problems and policy. Topics vary from year to year.

154-211D. AN INTRODUCTION TO ECONOMIC HISTORY. An introductory survey, with special emphasis on the historical development of the forms of economic organization used by modern industrial states. The balance between Canadian and European materials will vary from year to year according to the specialization of the instructor. (In the coming year [1973-74] the course will have a predominantly Canadian basis). PROFESSOR NAYLOR

154-250D. INTRODUCTION TO ECONOMIC THEORY. (6 credits.) The standard topics covered in an intermediate level microeconomic course — theory of exchange; theory of consumer behaviour; theory of production and cost curves; theory of the firm; theory of distribution; general equilibrium; welfare economics — will be dealt with in the course. The assumptions underlying the traditional neoclassical approach to economic theory will be carefully specified and alternative theoretical approaches will be considered. PROFESSOR WELDON

154-300A. INTERMEDIATE ECONOMIC THEORY. (3 credits.) Microeconomics: Analysis of price determination in a market economy, problems of economic efficiency and market structures. PROFESSOR ITON

154-301B. THE MODERN ECONOMIC HISTORY OF SOUTH ASIA. (3 credits; *Prerequisite:* 154-200D or 154-201D or 154-250D or consent of instructor.) PROFESSOR WRIGHT

154-302D. MONEY AND BANKING. (6 credits.) Principles of money, banking, and central banking covering the nature of money, measurement of money supply, determination of the quantity of money; sources of bank funds, uses of bank funds; nature of central banking, monetary policy, and the international payments system. PROFESSOR GALBRAITH

154-304D. CANADIAN ECONOMIC POLICY. (6 credits.) Analysis of selected topics in a Canadian setting. The separation of analytical, empirical and ethical questions in policy making is emphasized. PROFESSOR DEUTSCH

154-305D. GOVERNMENT AND BUSINESS. (6 credits.) A study of the structure and performance of industrial markets, with particular emphasis on the problems of maintaining effective competition. Experience in Canada and other countries will be examined. Readings will cover leading law cases, as well as relevant economic literature. PROFESSOR GREEN

154-306D. LABOUR ECONOMICS AND INSTITUTIONS. (6 credits.) Part A: Quantitative and qualitative characteristics of the Canadian labour force; evolution of the industrial relations system; history and structure of the labour movement; theories of the labour movement, elements of labour law. Part B: Employment and unemployment; manpower policy; wage theory; collective bargaining and public policy; income distribution and problems of poverty; curent policy issues. PROFESSORS SODERSTROM AND ROBACK

This is a prerequisite course to 154-426D and 279-492D except in the case of Honours students.

154-307D. BUSINESS STATISTICS. (6 credits; 154-200D or 154-250D is not a prerequisite — for differences between 154-307D and 154-317D, see note attached to 154-317D.) Distribu-

tions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals. PROFESSOR ————

154-310B. INTERMEDIATE ECONOMIC THEORY. (3 credits.) Macroeconomics: Analysis of economic stability; national income determination, economic fluctuations and growth, monetary and fiscal policy. PROFESSOR GRANTHAM

154-311D. NORTH AMERICAN ECONOMIC DEVELOPMENT. (6 credits; *Prerequisite:* 154-200D or 154-201D.) An historical analysis of the process of economic growth in the United States and Canada. First term: U.S.A. to 1914 and Canada up to 1896. Second term: U.S.A. 1914-72 and Canada 1896-1972. PROFESSOR DAVENPORT

154-312D. POLITICAL ECONOMY OF DEPENDENCE IN THE WESTERN HEMISPHERE. (6 credits.) A comparative study of contemporary economic structures in the 'peripheral' economies of Canada, the Caribbean and Latin America — with special emphasis on Canada and its constituent regions. The legacy of European colonization; trade and investment; operations of multinational corporations; preferences, common markets and foreign aid; the new economic nationalism of the western hemisphere. PROFESSOR LEVITT

154-313D. ECONOMIC DEVELOPMENT. (6 Credits.) The economics of structural change in developing countries. An examination of the applicability of economic theory in the context of development. Historical patterns of economic change in the developing world; economic planning; role of international trade and foreign aid in economic development; techniques of evaluating development projects; interdisciplinary problems of development.
PROFESSORS KURIEN (1st term) and ITON (2nd term)

154-314B. AFRICAN ECONOMIC DEVELOPMENT. (3 credits; *Prerequisite:* 154-200D or 154-250D or consent of instructor.) An analysis of the processes of economic growth in tropical Africa. Special emphasis will be placed upon natural resources, population, infrastructure, agriculture, trade and aid, the role of government and the parastatal institutions. The course is especially recommended to students enrolled in the African Studies Program, and for those wishing to continue in development economics. PROFESSOR SMITH

154-315B. ECONOMIC DEVELOPMENT OF CHINA. (3 credits.) A consideration of economic change in China since 1949. Emphasis is on the approach China has taken to development, its success in solving problems in various sectors of the economy and a comparison with approaches to development used in other countries. PROFESSOR WRIGHT

154-317D. ECONOMIC STATISTICS. (6 Credits.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.
PROFESSOR BEACH

NOTE: 154-307D is primarily for Commerce students and 154-317D is primarily for Arts and Science students and Macdonald College students.

154-321B. THE MODERN ECONOMIC HISTORY OF SOUTHEAST ASIA. (3 credits; *Prerequisite:* 154-301A or consent of instructor. Not offered 1973-74.) A reading course in which the economic history and development of Southeast Asia will be compared with that of South Asia.
PROFESSOR WRIGHT

154-327A. POPULATION ANALYSIS IN DEVELOPMENT ECONOMICS. (3 credits; *Prerequisite:* any course in Development Economics. Not offered 1973-74.) A review of theories of population growth, past trends and forecasts. Analysis of population change in developing countries, mortality, fertility, and migration. A study of interrelations between population growth and economic development in these less-developed economies.

154-331A. THE ECONOMIC DEVELOPMENT OF RUSSIA AND THE USSR. (3 credits; *Prerequisite:* 154-200D or equivalent, or consent of the instructor.) An historical and analytical study of the special features of Russian economic development, mainly since 1890.
PROFESSOR WRIGHT

154-341A. THE ECONOMIC HISTORY OF CHINA AND JAPAN, MAINLY FROM 1840 TO 1949. (3 credits.) A survey of the economic histories of China and Japan to the mid-20th century, emphasizing the factors underlying their contrasting economic patterns.
PROFESSOR M. F. LOUTFI

154-350D. HISTORY OF ECONOMIC THOUGHT. (6 credits.) A critical study of the writings of the great economists, with particular reference to the period from Adam Smith to the present day. PROFESSOR MARSH

154-352D. MACROECONOMICS. (6 credits.) A rigorous treatment of basic macroeconomic theory, emphasizing the Classical and Keynesian ideas, for the short-run determination of output, employment, interest rates and prices in the economy. Elements of International Economics, Money and Banking and Growth Theory. The Structure of the Canadian Economy.
PROFESSOR WURZBURGER

154-357D. ECONOMIC STATISTICS. (6 credits.) Stochastic phenomena; probability and frequency distributions, introduction to probability theory. Statistical inferences about propor-

tions, means and variances; analysis of variance; non-parametric statistics; index numbers and time series; economic forecasting; regression and correlation analysis; introduction to the general linear economic models; its uses and limitations; uses and misuses of statistics; Canadian economic statistics. PROFESSOR KURIEN

154-367D. MATHEMATICAL ECONOMICS. (6 credits.) A mathematical treatment of basic economic theory. PROFESSOR ————

154-400D. ECONOMIC ANALYSIS. (6 credits; Not offered 1973-74.) Analysis of the economic problems of the firm; the determination of the demand curve; the forecasting of demand; the measurement of costs; pricing problems in various types of markets; the determination of optimum policies for such matters as advertising, packaging and premiums. New theories of business behaviour will represent a substantial part of the course.

154-401D. LEADING PROBLEMS IN ECONOMIC HISTORY. (6 credits; *Prerequisite:* 154-200D or consent of instructor.) In 1973-74 the topic will be the evolution of European agrarian institutions. Rise of serfdom and manorial institutions in selected European countries; peasant communities; relation between economics and institutional change. The second term will take up the transfer of European peasant patterns to North America and nineteenth century agrarian reforms. Reading knowledge of French or another Western European language recommended. PROFESSOR GRANTHAM

154-402A. ECONOMIC HISTORY OF LATIN AMERICA. (3 credits; Not offered 1973-74.) The historical evolution of economic institutions in Latin America and the effect of that evolution on the economic development of that region from pre-colonial times through the end of World War II.

154-403B. ECONOMIC DEVELOPMENT IN LATIN AMERICA. (3 credits; Not offered 1973-74.) An analysis of the process of structural change and development of the Latin American economies since 1945.

154-404D. TRANSPORTATION. (6 credits.) History and development of the Canadian transportation system: economic characteristics of the various transportation media; comparative analysis of cost and rate structures; problems of regulation and control. MR. ROMOFF

154-408D. PUBLIC FINANCE. (6 credits.) A study of economic efficiency in the fiscal role of government. PROFESSOR KIERANS

154-409D. INVESTMENT ANALYSIS AND CORPORATION FINANCE. (6 credits.) Part I — Investment; capital markets; investment funds; securities; concepts of income, risk, value and appreciation; analysis of financial statements; stock market; investment policy. Part II — Forms of business organization; growth of the corporation; the managerial revolution; sources of funds; management of fixed and working capital; ratio analysis; expansion, reorganization and valuation. PROFESSOR BRIANT

154-421D. COMPARATIVE ECONOMIC SYSTEMS. (6 credits; *Prerequisite:* 154-200D or 154-250D or consent of instructor. It is desirable, but not required, that students should have taken 154-331A and 154-341A.) A comparative study of the economic systems of contemporary states. PROFESSOR DAVENPORT

154-423D. INTERNATIONAL TRADE AND FINANCE. (6 credits; for Majors students.) Theoretical and policy approaches to the study of international economic relations. Topics examined include: pure trade theory; tariff theory and policy; customs unions among advanced and among less-developed countries; relationship between trade and growth in theory and reality; balance of payments accounts, adjustment, and interaction with the domestic economy; international monetary institutions and their reform; the role of foreign trade in socialist economies. PROFESSOR M. F. LOUTFI

154-425D. ECONOMICS OF ECOLOGY. (6 credits.) A study of the application of economic theory to the problems of ecology. Particular attention will be given to the measurement and regulation of pollution, congestion and waste and other environmental aspects of specific economies. PROFESSOR M. A. LOUTFI

154-426D. LABOUR ECONOMICS. (6 credits; *Prerequisite:* 154-306D or consent of instructor.) The supply of labour, unemployment theories, the impact of technology on employment and unemployment, government employment and manpower policies, wage level changes, wages policy, the economics of education, social security legislation. PROFESSOR GREEN

154-450D. ADVANCED ECONOMIC THEORY. (6 credits.) Selected topics in economic theory from recent periodical and monograph literature. Information on the topics to be covered can be obtained from the Department before registration. PROFESSOR WELDON

154-453D. INTERNATIONAL ECONOMIES. (6 credits; for Honours students.) Analysis of the nature, effects and policy implications of international trade and finance. Topics receiving special emphasis will include: the pure theory of trade; the balance of payments and alternative exchange-rate systems; the terms of trade; the foreign-trade multiplier; regional integration; trade policy in developed and developing countries; problems of international liquidity and investment. PROFESSOR ITON

154-454A. CURRENT ECONOMIC PROBLEMS. (3 cerdits; Not offered 1973-74.) A discussion of contemporary economic issues.

154-455B. VALUES, INSTITUTIONS AND ENVIRONMENT IN ECONOMICS. (3 credits; Not given 1973-74.) A critical examination of the scope and method of economics, of the philosophical and value underpinnings of economic theory, and the influence of institutions and environment on 'economic' phenomena. Particular attention will be given to the works of writers who have dissented from the 'mainstream' of economics.

154-457B. LINEAR PROGRAMMING AND INPUT-OUTPUT ANALYSIS. (3 credits; *Prerequisite:* consent of the instructor. Not offered 1973-74.) National Economic Accounting, including input-output, and flow of funds accounts. Analytical uses relating to the impact of public and other expenditures on incomes, imports, savings, employment, etc.

154-458D. MONEY AND BANKING. (6 credits.) An advanced undergraduate treatment of selected topics in money and banking, including the theory and practice of monetary policy.
PROFESSOR VELK

154-467D. ECONOMETRICS. (6 credits; *Prerequisite:* 154-357D or consent of instructor.) Special emphasis on statistical tests of economic theories, the construction of econometric models, and problems in estimation methods. PROFESSOR KHAZZOOM

154-468A. URBAN AND REGIONAL ECONOMICS. (3 credits.) This course is meant to be an introduction to location theory and to urban and regional economics. Its purpose is also to teach some elementary tools of analysis to people intending to do research, applied or pure, in this field. PROFESSOR MARTIN

154-480A. RESEARCH PROJECT. (3 credits; *Prerequisite:* open to U3 students.) Students may undertake a research project under close supervision. They must also do such special reading and research as their advisers may direct.

154-481B. RESEARCH PROJECT. (3 credits; *Prerequisite:* open to U3 students.) Students may undertake a research project under close supervision. They must also do such special reading and research as their advisers may direct.

The following courses have recently been given Faculty of Management numbers, but are the same courses that for many years have been part of the program in Economics. They continue to have the same place in the program in the department that they earlier had, and can be taken on exactly the same terms as when they were courses with Department of Economics numbers. Where appropriate to a student's program, and with the permission of the program adviser, one or more of these courses may be taken for credit by students enrolled in programs in Economics. 279-293D may be taken for credit by students in the Industrial Relations Major, but not as an elective for students taking a Major in Economics.

279-293D [formerly 154-236D]. INTRODUCTION TO INDUSTRIAL RELATIONS. (6 credits; 154-200D or 154-250D is not a prerequisite. This course may not be taken as an elective for students taking a Major in Economics. However it may be taken for credit by students in the Industrial Relation Majors Program.) An introduction to the problems of employer-employee relations, including analysis of the personnel function, the structure, function and government of the modern trade union movement, labour legislation, and the state function and public interest in industrial relations. PROFESSOR BAIRSTOW

279-394B [formerly 154-316A]. COLLECTIVE BARGAINING. (3 credits; *Prerequisite:* 154-200D.) This course is designed for those students who wish to study principles in collective bargaining in Canada and abroad. It deals with the structure of the bargaining parties and the structure of bargaining itself. It is problem oriented and will rely heavily on empirical data and case problems. PROFESSOR WOODS

279-491D [formerly 154-415D]. INDUSTRIAL RELATIONS IN PRACTICE. (6 Credits; Compulsory for fourth year Industrial Relations Majors. Others by permission of the instructor.) Students in this course will be encouraged to come to grips with a wide range of problems in industrial relations theory, policy and practice. This is achieved by means of guided reading and small discussion groups, mock collective bargaining sessions, contact with practitioners in the field and problem oriented research assignments. PROFESSOR GOLDENBERG

279-492D [formerly 154-416D]. PUBLIC POLICY IN INDUSTRIAL RELATIONS. (6 credits; *Prerequisite:* 154-306D.) Collective bargaining and public policy towards industrial relations. Emphasis will be placed on recent public investigations into labour relations in the federal and provincial jurisdictions; international comparisons will be included. PROFESSOR WOODS

EDUCATION (413)

See the separate *Announcement of the Faculty of Education* for complete information about courses leading to the Bachelor of Education degree.

The course below is offered by members of the staff of the Faculty of Education as a subject for the B.A. or B.Sc. degree. This course does not lead to a teaching diploma.

413-402D. COMPARATIVE EDUCATION. (6 credits; Open to students in their Third and Fourth years.) A study and comparison of recent educational developments in England, France, Germany, the Soviet Union, and the United States. PROFESSOR LIPKIN

ENGLISH (120)

Departmental Office: Room 155, Arts Building,
Telephone 392-4987.

The Department of English divides its activities into three streams: literary studies, drama, and film and communications. With the exception of the Honours tutorials, all courses in all streams are open to McGill students, irrespective of the Honours or Major programs in which they are enrolled. Honours and Major students in English concentrate in one stream, but are required to become acquainted with each of the others.

In literary studies (Stream I) the department offers a considerable diversity of courses in the various historical periods of English literature, in Canadian literature, American literature, Caribbean and African literatures in English, the various literary genres, creative writing, literary criticism, stylistics and the linguistic structure of English. While members of the department are engaged in study and research in all of these areas, the Department has come to be regarded as having certain specific strengths, particularly in literary theory, comparative literature, and Renaissance literature. In conjunction with other Montreal universities, there is also considerable activity in the field of Mediaeval literature.

In addition to the study of dramatic literature as a genre, it is possible to pursue undergraduate studies in dramatic theory and various aspects of drama in production (Stream II).

The Drama Program tries to place its subject in as broad a social and philosophical context as possible. Students are encouraged to include in their studies the maximum number of Humanities, Social Sciences, and Fine Arts classes. The Drama and Theatre Major then chooses his specialized classes from a series of courses in dramatic literature, theatre history, aesthetics and dramatic criticism, acting, stagecraft, design and theatre technology. From year to year classes are also given in special interest areas when student demand is sufficient.

The Study of Communications (Stream III), while located in the Department of English, intersects with many other academic disciplines, including fine arts, sociology, psychology, and linguistics. Such an approach means that the student must take a wide variety of courses in English and in other disciplines associated with this study.

A foundation for study of Communication is a concentration on human language, its systemization in linguistics and philosophy, and its extension in social interaction. But the study of Communication includes, as well, the whole range of non-verbal signs, their perceptual basis in biology and psychology, and their function in aesthetic and social contexts. It includes the technological extensions through which such signs may be disseminated and transformed, as well as those larger conceptual structures or myths which enable them to be seen as signs at all.

Major Programs in English

The Major program in English combines both a concentration and a distribution of study. A student majoring in English will normally concentrate his work in one of the three streams. In each case, the Major program consists of 54 credits, but the distribution of work in each of the streams varies somewhat. *Students are advised to consult*

the Departmental Handbook for the specific regulations which apply to the various streams in the major program.

STREAM I — LITERATURE

The Major program in literature (Stream I) requires the student to gain a wide acquaintance with the field of literary study. Work is normally distributed among at least three of four categories of courses: periods and national literatures; major authors; literary theory and criticism; and genre, theme and style. In addition to this required distribution, students may elect to pursue a concentration in one of those areas, and all students in Stream I must take at least six credits in Stream II (Drama) and six in Stream III (Film and Communications). Six of the 54 credits may be taken, with permission, in a discipline other than English.

STREAM II — DRAMA AND THEATRE

Students in the Drama and Theatre stream may concentrate their studies in either Drama *or* Theatre. Those opting for the former area devote more attention to the literary and theoretical aspects of the subject, while those selecting the latter include more practical classes in their programs. All students must, to some extent, combine both practical and theoretical work.

The Drama and Theatre curriculum is not designed to provide professional theatre training. Our aim is rather to permit students to explore the subject as a Liberal Arts discipline.

In consultation with their faculty advisers, students select a minimum of 54 cerdits in English. Twelve of these must be chosen from the Literature and Communications streams, while the rest are drawn from Drama and Theatre offerings in the following areas: Dramatic Literature, Theatre History, Theatre Aesthetics and Dramatic Criticism, Acting, Directing, and Theatre Practice. Classes are also given in special interest areas from year to year. At least two public productions are staged annually.

STREAM III — COMMUNICATIONS

The study of Communications cuts across many disciplines, such as English, Fine Arts, Sociology, Psychology, Drama, Linguistics. It is founded on concepts of interpersonal relationships — in whatever disciplines they may traditionally have been studied.

Such an approach to the study of Communications means that the student must take a wide variety of courses in English as well as outside the English Department. The goals of the Stream III major is an interdisciplinary, not simply a multidisciplinary study, with emphasis on the integration of diverse approaches to the problems of human communication.

Of the 54 credits required for the completion of a Stream III major program, at least 12 credits must be drawn from the literature and/or drama streams of the English Department. The remaining 42 credits are chosen in consultation with an adviser, and include courses in English and allied subjects.

Honours Programs in English

The Honours Program is characterized by a sequence of tutorials and by the pursuit of a program exhibiting sufficient range and comprehensiveness in depth and breadth within one of the streams of Literature, Drama, or Film and Communications, together with some familiarity with the work carried on in each of the other streams.

The Honours Program, therefore, requires a minimum of 60 credits within the Department, carried on under the supervision of the Honours Program Committee, that the student must satisfy with respect to the rationale and comprehensiveness of his total program of courses within and outside the Department.

The Honours Committee will review the student's program each year, and examine the student's written rationale for his program, to determine that it shows sufficient range, depth, breadth and comprehensiveness.

LITERATURE CORE. The Literature core will require the student to show sufficient distribution of program to indicate he or she has pursued work in the major literary types, the study of a writer or author or creator in depth, some familiarity with literary

themes, traditions, etc., all within the context of showing a sufficient distribution of study across the periods of human history, such as (i) Mediaeval, (ii) Renaissance, (iii) Enlightenment, (iv) Romantic, (v) Modern. Some of these distributional requirements may be met by work in other Departments in the Faculty of Arts, such as History, Fine Arts, or another literature; but at least ten courses normally must be taken within the Department.

DRAMA. The Drama core will require the student to pursue work in theatre history, and in theatre aesthetics — all within the context of historical distribution represented by Classical, Mediaeval, Renaissance, Enlightenment, Romantic and Modern. The student will be required to show sufficient distribution within the program to indicate he or she has pursued work in the major dramatic types, the study of an individual dramatist in depth, some familiarity with dramatic forms, traditions, and so on, and has gained knowledge of the ways and means of dramatic expression in practice, through voice, gesture, movement, production problems, etc. Some of these distributional requirements may be met by work in other Departments in the Faculty of Arts, such as History, Fine Arts, or another literature; but at least ten courses normally must be taken within the Department.

FILM AND COMMUNICATIONS. The student will be required to pursue a basic program of extra-Departmental courses in Linguistics, Sociology, Fine Arts, and Psychology, as well as courses in Communications and Film History and Aesthetics within the Department. In this program, the student must demonstrate that he is familiar with the major types of media, the study of an individual dramatist, film producer, or creator in some depth, and a knowledge of the evolution of communicational modes through history by showing a sufficient distribution across the periods delineated in (a) above.

HONOURS TUTORIALS

All Honours students whatever their core will be required to pursue one of two sequences of Honours tutorials that will deal with the various theories, concepts, and tools required in the examination of written texts, presentations, productions and the like.

U-290. Archival and Informational Skills *or* U-295 Bibliography and Textual Study.

U-390. Linguistic or Symbolic Analysis *or* U-395 Approaches to Literature, Drama and Film.

U-490. Historical Analysis *or* U-495 History of Literary Theory and Criticism and Aesthetics.

(Students may follow U-290 or U-295 with either U-390 or U-395; but once opting for U-390 they must follow with U-490, and for U-395 with U-495.)

ADMISSIONS

Any U-1 student may indicate an intention to pursue an Honours program but his admission becomes final only in the U-2 year. Admission to U-2 is based on his having on *overall standing of 'B'* in the year's work and an average of 'B' in all his English courses as well as a recommendation from individual instructors. Since the program may be limited to as few as 25-40 students (though its size will be determined by staff) not all students opting for entry into Honours may be able to do so.

Students opting for Honours in the U-1 year must take one of two tutorials (U290 or U295) described above. They also must register in enough English courses to provide for the development of an appropriate core program in Literature, Drama or Film and Communications.

JOINT HONOURS PROGRAM

Joint Honours programs in English and various disciplines in the Faculty of Arts are available to qualified students. From the point of view of the Department of English, students in such programs are required to complete one of the tutorial sequences described above (see *Honours in English*). The remainder of each student's program is arranged to suit the particular circumstances and interests involved in consultation with an adviser and the Honours Committee. Admission to this program is quite limited.

FURTHER INFORMATION RELATING TO DEPARTMENTAL PROGRAMS AND MORE DETAILED DESCRIPTIONS OF COURSES MAY BE OBTAINED AT THE ENGLISH OFFICE, ROOM 155, ARTS BUILDING.

ENGLISH LITERATURE ASSOCIATION

The English Literature Association (an association of all students taking courses in the Department of English) publishes a guide to English courses, which is available either in the English office or in Room B-20, Arts Building.

Courses Being Given 1973-74

INTRODUCTORY COURSES

120-E10D. ENGLISH LITERATURE AND COMPOSITION. (6 credits.) A selection of Major and works in the English literary tradition; practice and instruction in composition. STAFF

120-E15D. ENGLISH AS A SECOND LANGUAGE. (6 credits; 2 hours and 3-5 hours laboratory.) Designed to help students whose native tongue is not English and who have difficulty in a) understanding spoken English, b) speaking it themselves, c) reading English text material or d) writing assignments in English. Admission to this course will be by examination. STAFF

200-LEVEL COURSES

These courses are open to university students who have completed English E10D or its equivalent. Courses also assigned alternate numbers preceded by 'E' are open to students in the CEGEP equivalent program, subject to the rules of that program. Other courses in this category are open to these students only with special permission.

120-E16A (200A). SURVEY OF ENGLISH LITERATURE. (3 credits.) The function of this course is to introduce the student to the major authors and periods of English literature. The approach is chronological with an emphasis on forms of transformation from one historical epoch to another. Periods covered: the Middle Ages through the Seventeenth Century. PROFESSOR BOUCHARD

120-E17A (208A). THE ENGLISH NOVEL OF THE 19TH CENTURY. (3 Credits.) A study of themes and techniques in the early 19th century novel. PROFESSOR BRUCE

120-E18D (210D). AN INTRODUCTION TO DRAMA. (6 Credits.) A survey of major types/authors of Western drama with emphasis on evolving concepts and terminology to deal with plays. Some consideration of the relationship between printed text and performance. PROFESSOR LIEBLEIN

120-E19A (212A). SHAKESPEARE. (3 credits.) An introductory study of representative plays of Shakespeare. PROFESSOR DUER

120-E19B (212B). SHAKESPEARE. (3 credits.) An introductory study of representative plays of Shakespeare. PROFESSOR HEPPNER

120-E20D (214D). ENGLISH POETRY OF THE 19TH CENTURY. (6 Credits.) The major poets of the 19th Century. PROFESSOR MATHEWSON

120-E21A (218A). POETRY OF THE 20TH CENTURY. (3 Credits.) Part I: A survey of modern poetry, British and American, in the age of Yeats, Pound, and Eliot. PROFESSOR HEUSER

120-E23A (228A). CANADIAN LITERATURE. (3 credits.) This session: the development of poetry in Canada from the beginnings to the present time. Particular emphasis will be placed on 20th Century work. PROFESSOR CONWAY

120-E24A (230A). AMERICAN LITERATURE. (3 credits.) An investigation of major American writers from Puritan times to 1860. PROFESSOR RUBIN

120-E26A (235A). TRAGEDY. (3 credits.) A study of tragedy as genre and mode in drama and fiction in selected texts ranging from antiquity to the 20th Century. The course aims at an understanding of the tragic temper as it unfolds through key stages in history reflected in changing literary and cultural conventions. PROFESSOR DORSINVILLE

120-E27D (245D). BACKGROUNDS TO ENGLISH LITERATURE. (6 credits.) A study of specific works, ancient, mediaeval, and modern, which have informed the development of English literature. PROFESSOR ROBINSON

120-E28B (201B). SURVEY OF ENGLISH LITERATURE. (3 credits.) The function of this course is to introduce the student to the major authors and periods of English literature. The approach is chronological with an emphasis on forms of transformation from one historical epoch to another. Periods covered: continuation from 18th Century to the present. PROFESSOR BOUCHARD

120-E29A, B (202A, B). COMMUNICATIONS, LITERATURE AND SOCIETY. (3 credits.) An introduction to communication theory, verbal and non-verbal communication. The objective of this modular course is to give the student a fundamental understanding of the communications process and its relationship to literature and society. PROFESSOR LAFON

120-E30B (209B). THE ENGLISH NOVEL OF THE 19TH CENTURY. (3 Credits.) A study of themes and techniques in the late 19th Century novel. PROFESSOR BRUCE

120-E31B (219B). POETRY OF THE 20TH CENTURY. (3 Credits.) Part II: A survey of modern poetry, British and American, in the age of Auden, Thomas and Lovell. PROFESSOR HEUSER

120-E32B (229B). CANADIAN LITERATURE. (3 credits.) This session: The development of prose literature in Canada from the beginnings to the present time. Particular emphasis will be placed on the 20th Century work. PROFESSOR CONWAY

120-E33B (231B). AMERICAN LITERATURE. (3 credits.) A study of Whitman, Dickinson, James, Twain, Frederic — Realism before 1900. PROFESSOR SIMON

120-E34A, B (203A, B). COMMUNICATIONS, LITERATURE AND SOCIETY. *(Prerequisite:* E29A.) A further exploration of the communication process with emphasis on individual work in the theoretical or practical aspects of communication. (Modular course.) PROFESSOR LAFON

120-E36B (237B). COMEDY. (3 credits.) An investigation of the nature of Comedy, from 1750 to the present. The course is concerned with theory and explanations, and approaches the subject simultaneously from formal and psychological standpoints. PROFESSOR RUBIN

120-E37B (211B). SHAKESPEARE. (3 Credits; *Prerequisites:* E19A, E19B, or permission of instructor.) An intermediate course on Shakespeare, stressing the development of his dramatic technique and including the non-verbal elements of drama: music, dance, and symbolic spectacle. PROFESSOR DAVISON

120-213D. HISTORY OF THE THEATRE I. (6 credits.) The history of primitive and ritual theatre; the rise of the theatre in the Far East; the theatre of Greece and Rome; the theatre in Europe to the Italian Renaissance. PROFESSOR RIPLEY

120-233A, B. THE STRUCTURE OF THE ENGLISH LANGUAGE. (3 credits.) Introduction to the linguistic study of the English language and its application to the study of literature. This course will be presented in modular form (i.e. in independent study units).

120-234A, B. THE HISTORY OF THE ENGLISH LANGUAGE. (3 credits; *Prerequisite:* Eng. 233 or Ling. 200.) Introduction to the linguistic study of the English language and its application to the study of literature, continued.

120-238A, B. THE ENGLISH LANGUAGE AND THE STUDY OF LITERATURE. (3 credits. Eng. 233 or Ling. 200.) Introduction to the linguistic study of the English language and its application to the study of literature, continued. STAFF

120-251D. ANGLO-SAXON LITERARY CULTURE. (6 Credits; Not open to students who have taken 320A and 321B.) An introductory course comprising of the reading of texts in translation, some learning of Old English, and a consideration of the literature in its social and cultural milieu. PROFESSOR CONWAY

120-274D. THE 19TH CENTURY. (6 Credits.) 19th Century English poetry and prose. The main emphasis will be on major Romantic and Victorian poets. PROFESSOR COLE

120-275D. FUNDAMENTALS OF DRAMA AND THEATRE. (6 credits.) Required course for students taking the concentration in theatre. PROFESSOR RIPLEY

120-290D. HONOURS TUTORIAL I. (6 credits.) Archival and Informational Skills. PROFESSOR BRISTOL

120-295D. HONOURS TUTORIAL I. (Alternate. 6 credits.) Much of the work will centre on a writer's time and life. Emphasis: biography, bibliography and textual study. PROFESSOR LINDEMAN

300-LEVEL COURSES

DCS, or its equivalent, is prerequisite for admission to 300 and 400 level courses.

120-301D. MODES OF COMMUNICATION. (6 Credits.) Studies in modern poetry, fiction, film and media, with emphasis on pattern recognition and configuration. The work begins with Whitman's *Leaves of Grass.* PROFESSOR McPHERSON

120-302A. STUDIES IN THE HISTORY OF THE FILM. (3 credits.) I. In 1973-74: Buster Keaton and the Comedy of Silence. PROFESSOR OHLIN

120-303B. STUDIES IN THE HISTORY OF THE FILM. (3 credits.) II. In 1973-74: The Self-Reflexive Film 1960-70. PROFESSOR OHLIN

120-304D. CARIBBEAN LITERATURE. (6 credits.) A study of representative works of the major Caribbean writers and of the trend towards an authentic Caribbean expression. PROFESSOR ELLIOTT

120-305D. STUDIES IN ANGLO-IRISH LITERATURE. (6 credits.) A study of James Joyce's *Dubliners, Portrait of the Artist,* and *Ulysses.* PROFESSOR RONSLEY

120-306D. THIRD WORLD LITERATURE. (6 credits.) A study of significant literary works from Africa, the Caribbean and South America (published or translated in English) in the

historical context of a sensibility, and an inner and outer landscape particular to the peoples and artists of the third world. PROFESSOR DORSINVILLE

120-307D. SPECIAL TOPICS OF LITERARY STUDY. (6 credits.) For 1973-74, a study of folk and minstrel poetry in their relations to British and North American Origins. PROFESSOR GOLDBERG

120-308D. THE GREAT WRITINGS OF EUROPE 1850-1950. (6 credits.) A study of French, German, etc. masterworks in the context of their national cultures. PROFESSOR ROBINSON

120-309A. SPECIAL TOPICS OF LITERARY STUDY. (3 credits.) Analysis of Style: an intensive study of selected passages from great English writers with a view to developing a technique for the analysis of style. PROFESSOR ROBINSON

120-310D. ENGLISH POETRY FROM 1500-1660 (excluding drama). (6 Credits.) The subject of the course will be the "Literature of Desire" in the lyrics and sonnet sequences of the period. PROFESSOR BOUCHARD

120-314D. THE MODERN NOVEL. (6 credits.) A careful study of major novels of the English language written in the 20th Century. Study includes the conditions out of which 20th Century fiction grew, as well as technical challenge and how various writers met them. PROFESSOR MacLENNAN

120-317A. A MAJOR ENGLISH POET. (3 credits.) Robert Browning. PROFESSOR SIMON

120-318D. STUDIES IN 20TH CENTURY LITERATURE. (6 Credits.) A select number of poems to be researched and interpreted, and a close study of four novels: *A Room with a View, The Good Soldier, Tropic of Cancer, Pale Fire.* PROFESSOR DUDEK

120-319A. STUDIES IN 20TH CENTURY LITERATURE. (3 Credits.) In 1973-74: the poems of Wallace Stevens; emphasis on *The Man with the Blue Guitar* and later poems. PROFESSOR CECIL

120-320A. ENGLISH LANGUAGE PROSE LITERATURE PRIOR TO THE NORMAN CONQUEST. (3 credits.) A study of Old English language and the reading of selected prose texts. PROFESSOR CONWAY

120-321B. ANGLO-SAXON POETRY, with emphasis on BEOWULF. (3 credits. *Prerequisite:* 320A or equivalent.) Further study of the language, and the reading of selected poetic texts. PROFESSOR CONWAY

125-325A. ELIZABETHAN DRAMA. (3 Credits.) Elizabethan Drama (exclusive of Shakespeare) including Marlowe, Kyd, Dekker, Jonson. Theatre History, Development of English Stage, Changing concepts of Comedy and Tragedy. PROFESSOR DAVISON

120-326B. JACOBEAN DRAMA. (3 credits.) A survey of representative examples of Jacobean drama, including works of Webster, Tourner, Marston and others. PROFESSOR DUER

120-327D. AESTHETIC THEORIES OF DRAMA AND DRAMATIC CRITICISM. (6 credits.) A theoretical study of drama and theatre as forms of human presentation based on the experience of reading plays and seeing productions. PROFESSOR TEMBECK

120-329D. THE MODERN DRAMA. (6 credits.) A study of major plays from Realism to Epic (1880-1960). PROFESSOR TEMBECK

120-333D. ENGLISH PROSE FROM BACON TO THE PRESENT. (6 credits.) The course traces the development of English prose expression, showing how the powers of the language have become enlarged as writers have responded to the challenge of new ideas and new inventions in writing techniques. Authors representative of each period are studied in detail. PROFESSOR MacLENNAN

120-334A. 20th CENTURY AMERICAN POETRY. (3 credits.) Modern American Poetry: a study of representative works of the major 20th Century American poets. PROFESSOR ELLIOTT

120-335D. MODERN NORTH AMERICAN FICTION. (6 Credits.) A study of short and long fiction by representative Canadian (French and English) and American writers, with special emphasis on the 20th Century. PROFESSOR ELLIOTT

120-336A. 20th CENTURY DRAMA. (3 credits.) A study of selected plays against their intellectual backgrounds. PROFESSOR SIMON

120-338D. INTRODUCTION TO THE FILM. (6 credits.) PROFESSOR ROCKMAN

120-342D. THE ART OF POETRY. (6 credits.) PROFESSOR GOLDBERG

120-343B. THE SHORT STORY. (3 credits.) A study of the significant trends in short story writing, with special emphasis on the works of American, Canadian and British authors. PROFESSOR ELLIOTT

120-344D. LITERATURE AND SCIENCE. (6 credits.) The evolution of man's sense of his relation to his environment, as reflected in the literature of different periods, read in the light of parallel developments in the history of science and philosophy. PROFESSOR WEEMS

120-345D. LITERATURE AND SOCIETY. (6 credits.) A study of the manner in which women are portrayed in different kinds of literature by different authors at different times. PROFESSOR BRUCE

120-346D. CREATIVE WRITING (ADVANCED). (6 credits.) Registration is strictly limited to those who can prove evidence of special talent in original composition. Students must have the instructor's permission to take this course. The course is restricted to poets for 1973-74.
PROFESSOR REICHERTZ

120-347A. STUDIES IN A LITERARY FORM. (3 credits.) The Dramatic Monologue: Robert Browning, Tennyson, Pound, Frost, Eliot, Richard Howard, and their contemporaries.
PROFESSOR SIMON

120-348B. STUDIES IN A LITERARY FORM. (3 credits.) In 1973-74: Storytelling. Oral tradition and transmission of stories; origins and types of stories; the art of telling and collecting stories; the uses of stories in the classroom. PROFESSOR LIEBLEIN

120-349D. THE FILM. (6 credits.) A study of the experimental film from its beginnings to the present; emphasis in first term on historical development and in second term on individual film artists. Attendance at weekly screening is essential. PROFESSOR WEES

120-352D. ART AND LITERATURE. (6 credits.) An exploration of relationships between literature and the visual arts. Topics include Homeric epic and Greek art; mediaeval narrative art and Gothic architecture; Renaissance romances; Impressionism; and political art of the 1930's.
PROFESSOR DAVISON

120-353A. ENGLISH LITERATURE FROM 1660 - 1800. (3 credits.) (Exclusive of drama and novel.) PROFESSOR BUITENHUIS

120-355A. RESTORATION AND 18th CENTURY DRAMA. (3 credits.) Representative English plays from Etherege to Sheridan, with some reference to Shakespearian adaptations.
PROFESSOR CECIL

120-356B. DRAMA OF THE VICTORIAN AND EDWARDIAN AGES. (3 credits.) Representative English plays from Byron to Galsworthy, with extended consideration of Bernard Shaw.
PROFESSOR CECIL

120-360D. THE DEVELOPMENT OF PROSE FICTION IN CANADIAN LITERATURE. (6 credits.) A survey of representative Canadian writers of prose fiction from the early 19th Century to the present. PROFESSOR LAFON

120-372D. SHAKESPEARE. (6 credits. *Prerequisite:* English 212.) A consideration of the main topics of concern in Shakespearean criticism and discussion of a range of plays not covered in English 212. PROFESSOR FRYE

120-373B. FILMMAKING. (3 credits.) Theoretical aspects of film approached through solving problems in shooting, editing, and making sound tracks for short 16mm, black and white films. Previous experience in filmmaking desirable. Students must apply for admission to the course on forms available in the departmental office (Arts 155), and must have permission of the instructor before enrolling in the course. PROFESSOR WEES

120-377D. MODERN THEATRE PRACTICE. (6 credits. Admission by permission of the Instructor.) An introduction to design — the media and objectives. The setting — its form, construction, assembly, and control. Costumes — their design and execution. An examination of the non-scripted elements in the theatre experience and their relationship to the spoken text.
D. HOFFMAN

120-379D. THEATRE LABORATORY. (6 credits.) Exploration of the uses of Drama and in particular the interconnections that exist between theatre and politics. The main work of the course will be focussed on a production of a play to be chosen in consultation with the class, to be presented by the Department of English, Spring 1974. (Students in this course must register in one co-requisite course. Consult Departmental Handbook for details.)
PROFESSOR BRISTOL

120-380A. INDIVIDUAL READING COURSE. (3 credits.) STAFF

120-381B. INDIVIDUAL READING COURSE. (3 credits.) STAFF

120-382A. CHAUCER: CANTERBURY TALES. (3 credits.) A study of Chaucer and the *Canterbury Tales* in the context of the intellectual, aesthetic, and social milieu of the Middle Ages. PROFESSOR WILLIAMS

120-383B. CHAUCER: TROILUS AND CRISEYDE. (3 credits.) A study of Chaucer and Troilus and Criseyde in the context of the intellectual, aesthetic, and social milieu of the Middle Ages. PROFESSOR WILLIAMS

120-390D. HONOURS TUTORIAL II. (6 credits.) Linguistic or Symbolic Analysis.
PROFESSOR OHLIN

120-395D. HONOURS TUTORIAL II. (Alternate. 6 credits.) Approaches to Literature, Drama and Film. PROFESSOR REICHERTZ

120-401D. SATIRE. (6 credits.) Study of the genre in the works of the major satirists (Horace, Juvenal, Rabelais, Cervantes, Molière, Swift, Huxley, Orwell, etc.) PROFESSOR KLIMA

120-410D. STUDIES IN THE MASS MEDIA. (6 credits; Admission by permission of the instructor.) This course rests on the assumption that, although the students have seen many hours of television and may have produced a television presentation, they do not understand how to manipulate the medium and its varied technical apparatus to achieve a *pre-determined* end. The course, therefore, will stress two things: a) skill training in the manipulation of television equipment; and b) the application of a systematic approach to television communication design.

120-480A. INDIVIDUAL READING COURSE. (3 credits.) STAFF

120-481B. INDIVIDUAL READING COURSE. (3 credits.) STAFF

120-484D. THE 17TH CENTURY. (6 Credits; *Prerequisite:* a course in 16th or 17th Century literature, or permission of the instructor.) Readings in the works of Donne, Herbert, Marvell, Andrewes, Bacon, Browne. PROFESSOR MALLOCH

120-487B. THE 20TH CENTURY. (3 Credits.) For 1973-74: A study of the works of Virginia Woolf. PROFESSOR RONSLEY

120-490D. HONOURS TUTORIAL III. (6 credits.) Historical Analysis. PROFESSOR THEALL

120-494D. THE 18TH CENTURY. (6 Credits.) A study of the major writers with emphasis on the changing intellectual background of the age. PROFESSOR KLIMA

120-495D. HONOURS TUTORIAL III. (Alternate. 6 credits.) History of Literary Theory and Criticism and Aesthetics. PROFESSOR HEPPNER

120-496D. INTERDISCIPLINARY SEMINAR IN NORTH AMERICAN STUDIES. (3 credits.) PROFESSOR BUITENHUIS

CONFERENCE COURSES

These courses are designed to give students an opportunity to study in depth major works of literature, or the works of individual authors, or literary forms or themes.

Enrolment in each course is normally restricted to twelve, and students must obtain the permission of the instructor before registration. Students should consult the Department for the specific topics of the conference courses to be offered.

120-452A. 16th CENTURY. (3 credits.) A study of the works of Christopher Marlowe. Attention may be given to some works by Kyd and Webster. PROFESSOR LINDEMAN

120-456A. 18th CENTURY. (3 credits.) Blake: the course will study Blake's works up to and including *Milton,* focussing on Blake's theories of perception and the imagination and on the interrelationship between word and design in the poems. PROFESSOR HEPPNER

120-457A. 19th CENTURY. (3 credits.) The novels of Jane Austen. PROFESSOR MALLOCH

120-458B. 20th CENTURY. (3 credits.) The novels of William Faulkner. PROFESSOR RUBIN

120-461B. AMERICAN LITERATURE. (3 credits.) The poetry of T. S. Eliot and some of the plays. PROFESSOR MATHEWSON

120-463A. CANADIAN LITERATURE. (3 credits.) Themes in English Canadian and French Canadian fiction. PROFESSOR COLE

120-466A. LITERARY FORMS. (3 credits.) Allegory: an attempt to examine certain works of mediaeval literature not as examples of literary genre, but as examples of a mode of thought paradigmatic for an entire culture. The evolution and disappearance of that mode. PROFESSOR WEEMS

120-468A. LITERARY THEMES. (3 credits.) Love, Time and Death in the Poetry of Emily Dickinson. PROFESSOR RUBIN

The following courses are cross-listed with the Department of English and may be taken as part of a Major or an Honours program in English:

135-351B. STUDIES IN MODERN JEWISH FICTION. (See Jewish Studies Program, page 119). PROFESSOR LINDEMAN

166-217A. SOCIAL ASPECTS OF MASS COMMUNICATIONS. (See Sociology Department, page 154). PROFESSOR ROCKMAN

GRADUATE COURSES

Graduate courses in English are open to final year undergraduates with special permission. (See the *Announcement of the Faculty of Graduate Studies and Research* for full descriptions of these courses.)

COURSES NOT GIVEN IN 1973-74.

These are offered from time to time by the Department of English.

E22D (221D) The Great Writings of Europe, 1550-1850

E35A (236A) Comedy

215D History of the Theatre II
232D Voice and Speech I
246D Creative Writing (Intermediate)
250D Approaches to Literary Study
311A Studies in Science Fiction
313D Literature and Film
315B Milton
316D Studies in 19th Century American Lit.
322B English Literature in 14th and 15th Centuries, exclusive of Chaucer
323A Middle English
324A Mediaeval and Tudor Drama
332D The English Novel to 1800
330D Studies in Drama
331B Studies in Drama
337D Crosscurrents between English Lit. and European Lit. of 18th Century.
339D Literary Criticism
340D 20th Century Canadian Lit.
341B Studies in Communication
350A Departmental Seminar
351B Departmental Seminar
354B English Literature from 1660-1800 (excl. Drama & Novel)
370B Seminar in the Film
375D Period and Style in the Theatre
376D Theatre and Practice of Dramatic Production
451A (conf.) Middle English
454A (conf.) 17th Century
475D Drama in the Theatre II
486A The 20th Century
499A African Literature.

DEPARTEMENT DE LANGUE ET LITTERATURE FRANÇAISES (126)

Administration Générale

100 Peterson Hall
3460 McTavish
Montréal 112

Tél.: 392-4577 ou 3003 ou 4591

Directeur: Prof. John Greer Nicholson
Tél.: 392-4591

Comité des Etudes Sous-Graduées — 126 Peterson Hall
Président: Prof. Georges Pomet (en congé 1973-74)
Tél.: 392-4671

Secrétaire: Jeanne Belluteau (Mlle)
Tél.: 392-4670 ou 4671

Comité des programmes "Honneurs"
Prof. Michael Cartwright
Prof. Jean-Pierre Duquette
Prof. Georges Pomet
Prof. François Ricard

Conseillers — Programme "Major"

Littérature française ..... Prof. Smith
Littérature québécoise ..... Prof. Vigneault
Langue et civilisation françaises ..... Prof. Cartwright

Conseiller des étudiants

Prof. Russell G. McGillivray
324 Peterson Hall
Tél.: 392-4495

Généralités

Le Département de Langue et Littérature Françaises de McGill offre un éventail de cours qui couvre, d'une manière aussi complète et approfondie que possible, l'ensemble des littératures française et québécoise, de même qu'un certain nombre de problèmes touchant à la langue, la méthodologie littéraire, la stylistique et la traduction.

Depuis longtemps, le Français est la seule "langue de travail" à l'intérieur du Département. Les francophones constituent une proportion importante de nos étudiants. Ceci représente un avantage appréciable pour les anglophones qui peuvent faire leurs études dans un milieu essentiellement français.

Une grande diversité de points de vue quant aux techniques d'enseignement et à la méthodologie littéraire existe parmi les professeurs du Département. Nous veillons à ce que les étudiants soient en contact avec le plus grand nombre de professeurs possible, durant le cours de leurs études, de façon à ce qu'ils puissent bénéficier d'une multiplicité d'"approches".

Programmes Spécialisés

Le Département offre deux types de spécialisation qui conduisent à l'obtention de deux diplômes de Baccalauréat:

— un diplôme de B.A. avec "Honneurs" en Français

— un diplôme de B.A. avec "Major" en Français

Ces deux programmes se subdivisent en plusieurs concentrations.

LE PROGRAMME "HONNEURS"

Admission

Pour être admis dans le programme "Honneurs" un étudiant doit avoir fait la concentration "Français" au CEGEP et avoir obtenu de bons résultats dans ses cours. Son dossier sera examiné par un Comité de Professeurs du Département. Les étudiants provenant d'institutions anglophones seront, en principe, admis en "Honneurs" à la fin de leur première année universitaire seulement.

Information générale sur le programme "Honneurs"

Pour obtenir un diplôme "Honneurs" de la Faculté des Arts de McGill, un étudiant doit concentrer ses études à l'intérieur d'un programme approuvé qui met en jeu un nombre minimum de cours dont certains peuvent être obligatoires. En principe, cet ensemble de cours doit être pris dans un seul département; toutefois, il existe plusieurs programmes d'"Honneurs Conjoints", dont nous parlerons plus loin.

Au Département de Français, le programme d'"Honneurs" exige un minimum de dix cours — avec la possibilité de suivre un "Tutorial" individuel durant la dernière année — dont quatre sont obligatoires. Une autre exigence du programme est d'obtenir une note d'au moins 65% dans chaque cours de Français.

Que donne un diplôme d'"Honneurs"?

Avant tout, un "B.A. Honneurs" est une préparation à des études supérieures en Français (Maîtrise et Doctorat). Dans cette perspective, nous offrons à l'étudiant une base solide dans les études françaises en même temps que nous l'engageons dans la voie d'une spécialisation. Ces deux aspects complémentaires du programme expliquent la présence de cours obligatoires et la possibilité pour l'étudiant de faire un travail individuel (Tutorial) en fin d'études. Quelle que soit l'orientation future de l'étudiant, le Département veille à ce que le programme du cours de chacun soit établi en consultation avec le Comité des Etudes Sous-Graduées (C.E.S.G.) de façon à ce qu'il soit cohérent et manifeste une certaine unité d'ensemble.

Cours obligatoires dans le programme "Honneurs"

Les étudiants inscrits dans le programme "Honneurs" doivent suivre les cours Fr. 290D et Fr. 390D.

Ceux qui font leur concentration en littérature française doivent suivre un minimum de deux cours portant sur un sujet antérieur au XIXe siècle.

Ceux qui se spécialisent en littérature québécoise doivent suivre le cours Fr. 264D et un cours portant sur la littérature française du XIXe siècle.

Tous les étudiants d'"Honneurs" doivent suivre un cours au moins par année hors du Département.

"Honneurs Conjoints"

En consultation avec les départements concernés, un étudiant peut suivre un programme d'"Honneurs Conjoints", ce qui représente un total de trente-six crédits — six cours "D" sur trois ans.

S'adresser au Président du Comité des Etudes Sous-Graduées du Département de Français.

LE PROGRAMME "MAJOR"

Généralités

Le programme "Major" vous permet d'acquérir un baccalauréat spécialisé en Français selon les normes établies par le Ministère de l'Education.

La concentration "Major" exige moins de cours que celle d'"Honneurs" et vous permet ainsi une plus grande variété de matières étudiées et une plus grande souplesse dans l'établissement de votre programme.

L'étudiant "Major" doit suivre, durant sa scolarité, un minimum de sept cours dans le Département.

Les cours obligatoires varient suivant le type de concentration choisi à l'intérieur du programme.

A quoi sert un B.A. "Major in French"?

La plupart de nos étudiants "Major" se destinent à une carrière dans l'enseignement, principalement au niveau secondaire. Ils complètent leur *B.A. Major* par une année de pédagogie qui leur permet d'obtenir leur qualification de professeur. Cette année supplémentaire peut s'effectuer à McGill ou ailleurs. Beaucoup poursuivent des études graduées dans d'autres universités, surtout aux Etats-Unis.

Les différents programmes "Major"

Trois options existent dans le Département pour les étudiants "Major":

— Littérature française
— Langue et civilisation françaises
— Littérature québécoise

Quelle que soit l'option choisie, nous encourageons nos étudiants à harmoniser leur programme de cours au Département avec des cours suivis à l'extérieur de celui-ci: Langues modernes - Sciences Sociales - Psychologie ou Linguistique.

Vos chances d'admission dans un programme gradué sont meilleures si votre "Transcript" montre que vos études ont été rationnellement structurées.

Cours obligatoires communs aux trois options

Tous les étudiants "Major" doivent suivre, en U1, un des deux cours suivants:

— Fr. 245D s'ils sont anglophones
— Fr. 247D s'ils sont francophones

En U2, les anglophones suivent le Fr. 347D et les francophones le Fr. 345D.

Cours obligatoires dans les différentes options

Littérature française: deux cours portant sur la littérature française avant 1800

Langue et civilisation françaises: les cours Fr. 241D - 341D - 441D

Littérature québécoise: le cours Fr. 229D

Traduction

Le Département n'offre pas encore de programme complet de traduction au niveau sous-gradué.

Toutefois, un certain nombre de cours de langue et de traduction offerts par le Département peuvent se combiner avec des cours donnés dans d'autres départements (Anglais - Linguistique - Psychologie, etc.) et des programmes *ad hoc* peuvent être arrangés pour des étudiants qui souhaiteraient poursuivre leurs études en traduction dans des écoles spécialisées au niveau de la maîtrise (université de Montréal - Genève - Paris - etc.).

Cours de Niveau Collégial

Language Courses for *students from outside the Province of Québec,* as well as *Functional French,* are listed under FRENCH AS A SECOND LANGUAGE, page 102.

College Equivalent Quebec students, whether they satisfy the Language Requirement in French or in another language, were required to pass a FRENCH TEST before the end of their first year at McGill. Students who failed this test must enrol in a half course in Oral French in Second year.

Students with a mark of 80% or more in Oral French on the High School leaving examinations will be considered to have displayed competence in French and need not take the French Test nor enrol in a French course if they satisfy the Language Requirement in another language.

Students whose oral mark is less than 75% should have taken al least a half course in *Français parlé* in their First College Equivalent year.

COURS DE 2e ANNEE (CEGEP-II)

126-150A. FRANÇAIS PARLE. (3 Crédits; Premier semestre; Ouvert seulement aux étudiants québécois qui ont échoué au French Test en 1972-73.)

126-151D. LITTERATURE FRANÇAISE. (6 Crédits; Cours annuel; *Textes* — Racine, *Phèdre:* Bordas; Molière, *Les Femmes Savantes:* Bordas; Voltaire, *Zadig:* Bordas; Abbé Prévost, *Manon Lescaut:* Bordas; Baudelaire, *Les Fleurs du Mal:* Bordas; Flaubert, *Madame Bovary:* Livre de Poche; Giraudoux, *La guerre de Troie n'aura pas lieu:* Livre de Poche; J.-P. Sartre, *Huis-Clos:* Poche). Etude des principaux courants littéraires, du XVIIe au XXe siècle. Ce cours n'est pas ouvert aux étudiants qui ont pris le cours 119D en 1972-73 ni à ceux qui ont obtenu moins de 75 dans leur cours de 1ère année.

126-152D. LITTERATURE FRANÇAISE MODERNE ET CONTEMPORAINE. (6 Crédits; Cours annuel.) Etude de quelques œuvres majeures du XXe siècle.

126-153A. LITTERATURE FRANÇAISE CONTEMPORAINE. (3 Crédits, Premier semestre.) Etude de quelques œuvres marquantes, de 1930 à nos jours.

126-154B. LITTERATURE FRANÇAISE CONTEMPORAINE. (3 Crédits; Deuxième semestre). Etude de quelques œuvres marquantes, de 1930 à nos jours.

126-155D. THEATRE EN ACTION. (6 Crédits; Cours annuel.) Les étudiants de ce cours seront appelés à monter et à interpréter une ou plusieurs pièces du théâtre contemporain.

126-157D. LITTERATURE QUEBECOISE CONTEMPORAINE. (6 Crédits; Cours annuel; *Textes:* Ferron, *Contes;* Bessette, *Le Libraire;* J. Renaud, *Les Insolences du Frère Untel;* Claire Martin, *Avec ou sans Amour;* Marie-Claire Blais, *Une Saison dans la vie d'Emmanuel;* Hubert Aquin, *Prochain Episode.)* Depuis 1960, la littérature québécoise connaît un véritable renouvellement. Dénonciatrice des tabous du passé, elle fait la critique de toute la société et force à une prise de conscience le peuple québécois.

126-158A. LITTERATURE QUEBECOISE CONTEMPORAINE. (3 crédits; Premier semestre; *Textes* — Gratien Gélinas, *Bousille et les Justes:* Ed. de l'Homme; Marie-Claire Blais, *Une saison dans la vie d'Emmanuel:* Les Romanciers du jour; Pierre de Grandpré, *La Patience des Justes:* Ed. du Renouveau pédagogique; Jacques Godbout, *Salut Galarneau:* Le Seuil). La contestation des mythes sociaux. Par opposition à la littérature traditionnelle dépeignant une société idéalisée, les œuvres contemporaines nous montrent l'éclatement d'un certain système de valeurs, la remise en question des traditions devenues trop fréquemment des conventions vides de sens.

126-159B. LITTERATURE QUEBECOISE CONTEMPORAINE. (3 crédits; Deuxième semestre; *Textes:* André Langevin, *Poussière sur la ville:* Le Cercle du livre de France; Claire Martin, *Doux-Amer:* Livre de poche canadien; Anne Hébert, *Les chambres de bois:* Le Seuil; Françoise Loranger, *Encore cinq minutes:* Cercle du livre de France). L'amour dans la littérature

contemporaine. Thème qui acquiert une grande importance dans la littérature québécoise actuelle. Le thème de l'amour est fréquemment associé à celui de liberté revendiquée par la femme qui ne veut plus être considérée uniquement comme mère et comme épouse.

126-160A. LITTERATURE QUEBECOISE CONTEMPORAINE. (3 crédits; Premier semestre; *Textes* — Ringuet, *Trente Arpents;* G. Roy, *Alexandre Chenevert;* Marie-Claire Blais, *Une Saison dans la vie d'Emmanuel.)* Quel est le sens du mot "pays" au Québec? Quelle est la nature spécifique de la culture française dans le développement de la vie américaine? Comment les écrivains québécois ont-ils réussi à situer ce problème?

126-161B. LITTERATURE QUEBECOISE CONTEMPORAINE. (3 crédits; Deuxième semestre; *Textes:* Lemelin, *Les Plouffe;* J. Benoît, *Les Voleurs;* G. Choquette, *L'Apprentissage.)* A travers trois œuvres contemporaines on étudiera l'évolution du système de valeurs dans les dernières années et on s'attachera tout particulièrement aux problèmes qui concernent la famille et la jeunesse.

126-162A. LITTERATURE QUEBECOISE CONTEMPORAINE. (3 crédits; Premier semestre; *Textes* — G. Roy, *Bonheur d'Occasion:* Choix de textes d'Albert Laberge; Emile Nelligan, *Poèmes choisis:* Fides). Vers le milieu du XXe siècle, les paysans canadiens émigrent en ville. On assiste alors à une remise en question de valeurs telles que la religion et la culture. Certains romans et poèmes reflètent tout particulièrement cette transformation.

126-164A. CIVILISATION QUEBECOISE. (3 crédits; Premier semestre; *Ouvrages recommandés* — Conférences de J. A. de Sève, *Peinture canadienne-française:* Les presses de l'Université de Montréal; Viau, Guy, *La peinture moderne au Canada français:* Ministère des Affaires culturelles, Québec, 1964.) Peinture. L'Ecole de Montréal (1940 jusqu'à nos jours). Un éclatement des valeurs agite le Québec depuis les années 1940-1960. Depuis le *Refus Global* de Borduas, surréalistes, automatistes et plasticiens poursuivent cette recherche d'une libération nouvelle dans la réalisation plastique.

126-165B. CIVILISATION QUEBECOISE. (3 Crédits; deuxième semestre; *Ouvrages recommandés* — Gilles Marsolais, *Le cinéma canadien:* Editions du Jour; Dominique Noguez, *Essais sur le cinéma québécois:* Editions du Jour, Montréal 1971). Cinéma québécois, miroir d'une société. La majeure partie du cinéma canadien se fait au Québec. Le cinéma-vérité a contribué à créer un "style" québécois dans un contexte socio-politique déterminant. Portraits de la jeunesse, polémiques, documents de géographie humaine y tiennent un rôle de "premier plan".

126-166D. HISTOIRE DE LA LITTERATURE FRANÇAISE. (6 Crédits; Cours annuel.) Cours avancé recommandé aux étudiants qui désirent poursuivre des études littéraires au niveau universitaire.

126-167D. COURS DE GRAMMAIRE ET DE COMPOSITION FRANÇAISES. (6 Crédits; Cours annuel). Ce cours s'adresse aux étudiants désireux de parfaire leur connaissance du français écrit au moyen de compositions, de traductions et d'analyses de textes.

Cours de Niveau Universitaire

126-220A. FRANÇAIS ECRIT I. Ce cours est destiné à améliorer la maîtrise de la langue écrite. Il consiste en un approfondissement de la grammaire ainsi qu'en une utilisation systématique des ressources stylistiques en français. PROFESSEUR STEEDMAN

126-221B. FRANÇAIS ECRIT II. *(Prérequis:* 126-220 sauf permission du C.E.S.G.) Ce cours est destiné à améliorer la maîtrise de la langue écrite. Il consiste en un approfondissement de la grammaire ainsi qu'en une utilisation systématique des ressources stylistiques du français. PROFESSEUR STEEDMAN

126-223A. LITTERATURE FRANÇAISE MODERNE. Etude de quelques œuvres parmi les plus marquantes de la littérature française du XXe siècle. Ce cours s'adresse aux étudiants qui ne sont pas inscrits dans un des programmes du Département (Major - Honours) mais qui désirent suivre un demi-cours en français sur la littérature moderne. STAFF

126-224B. LITTERATURE FRANÇAISE CONTEMPORAINE. *Prérequis:* 126-223A sauf permission du C.E.S.G. Etude de quelques œuvres parmi les plus marquantes de la littérature contemporaine. Ce cours s'adresse aux étudiants qui ne sont pas inscrits dans un des programmes du Département (Major - Honours) mais qui désirent suivre un demi-cours en français portant sur la littérature contemporaine. M. MAUGEY

126-225D. LE ROMAN APRES 1945. Dans ce cours on essaiera de dégager les grands problèmes d'ordre technique et philosophique du roman "existentialiste" et du "nouveau roman". On se servira d'analyses serrées de textes en classe pour faire ressortir les traits essentiels de chaque roman et diverses approches critiques. STAFF

126-227A. INTRODUCTION A LA LITTERATURE QUEBECOISE I. Ce cours proposera l'étude des œuvres les plus significatives de la littérature québécoise afin d'arriver à une meilleure compréhension de la société québécoise d'hier et d'aujourd'hui. STAFF

126-228B. INTRODUCTION A LA LITTERATURE QUEBECOISE II. *Prérequis:* 126-227A sauf permission du C.E.S.G. Ce cours proposera l'étude des œuvres les plus marquantes de la littérature québécoise afin d'arriver à une meilleure compréhension de la société québécoise d'hier et d'aujourd'hui. STAFF

126-229D. INITIATION A LA LITTERATURE QUEBECOISE. Réservé aux étudiants MAJOR. PROFESSEUR SMITH

126-231D. LE ROMAN AUX TEMPS ROMANTIQUES. Etude des différents "visages" du romantisme littéraire français par les œuvres les plus marquantes d'écrivains tels que Stendhal, Constant, Balzac, Sand, Hugo, Mérimée. PROFESSEUR MORISOT

126-235D. HISTOIRE DU CINEMA EN FRANCE. En même temps qu'une rétrospective du cinéma français des origines à nos jours et de ses principaux "auteurs", ce cours se propose d'aborder l'étude des genres cinématographiques à partir d'exemples français. M. JULIEN

126-236A. LA LITTERATURE FRANÇAISE DU XVIIe SIECLE I. Les étudiants qui ont une idée générale de la littérature française pourront approfondir le 17e siècle dans ses différents aspects essentiels par une lecture approfondie d'œuvres intégrales ou de morceaux choisis assez étendus. Les étudiants devront préparer des explications de textes précises et rédiger quatre ou cinq devoirs dans le semestre sans compter de courtes interrogations en classe. MIle CHAMPIGNEUL

126-237B. LA LITTERATURE FRANÇAISE DU XVIIe SIECLE II. *Prérequis:* 126-236A sauf permission du C.E.S.G. Les étudiants qui ont une idée générale de la littérature française pourront approfondir le 17e siècle dans ses différents aspects essentiels par une lecture approfondie des œuvres intégrales ou de morceaux choisis assez étendus. Les étudiants devront préparer des explications de textes précises et rédiger quatre ou cinq devoirs dans le semestre sans compter de courtes interrogations en classe. MLLE CHAMPIGNEUL

126-238A. INTRODUCTION A LA LITTERATURE NOIRE D'EXPRESSION FRANÇAISE. Origine particulière de la littérature antillaise et africaine. Ce cours portera principalement sur le mouvement de la négritude et sur ses chantres, à savoir Aimé Césaire, Léopold Sédar Senghor, Léon Gontran Damas, et Jacques Rabemanajara. De même l'étudiant sera introduit dans l'univers romanesque et théâtral de ces créatures qui apportent au monde une sensibilité et un art nouveaux. M. MAUGEY

126-241D. CIVILISATION FRANÇAISE DE LA RENAISSANCE A LA REVOLUTION. Ce cours a pour but de faire connaître, au moyen de documents divers (livres, diapositives, films), le milieu humain dans lequel la littérature française s'est développée jusqu'à la fin du dix-huitième siècle. Tous les aspects qui peuvent aider les étudiants à situer et à comprendre les œuvres littéraires seront évoqués: histoire de la vie politique, sociale, artistique, matérielle, etc... de la France avant la Révolution. PROFESSEUR TICHOUX

126-245D. STYLISTIQUE COMPAREE DU FRANÇAIS ET DE L'ANGLAIS. Ce cours a pour but d'améliorer la qualité du français écrit des étudiants, en éliminant les fautes dues à l'utilisation de structures et de mots anglais. La méthode consiste à comparer systématiquement les moyens d'expression des deux langues. De nombreux exercices pratiques viendront compléter les explications théoriques. PROFESSEUR TICHOUX

126-247D. LANGAGE ET METHODOLOGIE LITTERAIRE. Réservé aux étudiants francophones. Ce cours offre une étude des phénomènes de synonymie, des effets intellectuels et affectifs, destinée à sensibiliser l'étudiant aux différents niveaux de la langue en français. D'autre part, une acquisition systématique du vocabulaire étudié en contextes vise à l'enrichissement de la langue. Parallèlement à ces exercices de stylistique, on étudiera, à travers leurs textes, les différentes méthodes des principaux représentants de la critique littéraire en France jusqu'à nos jours. Mme PASCAL

126-251A. LE PREROMANTISME. Réservé aux étudiants Honours. A travers les œuvres qui montrent la voie au romantisme, on suivra l'évolution de l'esprit préromantique de Des Grieux à Obermann. Mme PASCAL

126-252B. LA POESIE ROMANTIQUE. Réservé aux étudiants Honours. A l'aube du XIXe siècle, en France, la poésie romantique manifeste l'épanouissement d'un mouvement européen né simultanément en Angleterre et en Allemagne, cinquante années plus tôt. Le cours se situera donc dans cette perspective de la littérature comparée avant de se limiter à la poésie française, étudiée à travers les écrits théoriques et les œuvres majeures. On s'attachera, d'une part, à montrer comment le contexte historique et social a favorisé le développement d'une sensibilité et d'une thématique nouvelles; d'autre part, à souligner la diversité des tendances regroupées sous l'étiquette commune. PROFESSEUR TERRASSE

126-262D. LE ROMAN AU XVIIIe SIECLE. Réservé aux étudiants Honours. L'évolution du roman au cours du dix-huitième siècle. Illustration à l'aide de textes caractéristiques choisis chez les auteurs majeurs des différentes tendances qui se manifestent à l'intérieur du "genre" romanesque: roman philosophique, picaresque, sensible, réaliste, de mœurs, etc. PROFESSEUR FURLAN

126-264D. HISTOIRE DE LA CIVILISATION QUEBECOISE. Réservé aux étudiants Honours. Etude des différentes manifestations artistiques de la civilisation québécoise: Littérature - Peinture - Sculpture - Architecture - Arts décoratifs - Musique - Cinéma.
PROFESSEUR BOUCHER

126-275D. LE ROMAN APRES 1945. Réservé aux étudiants Honours. Autobiographique (Camus, Sartre, Céline), expérimental (Céline, Robbe-Grillet) ou traditionnel (Bazin), le roman moderne ne manque pas de diversité. Ce cours abordera: a) les relations entre l'univers imaginaire des romanciers et l'histoire; b) les techniques de composition propres à chacun des auteurs.
PROFESSEUR SMITH

126-290D. INTRODUCTION A L'ANALYSE TEXTUELLE. Réservé aux étudiants Honours. Introduction à la linguistique et à l'analyse linguistique de textes littéraires. Notions de lexicologie. Les figures du discours. Exercices pratiques sur des textes littéraires de différentes époques et différents genres.
PROFESSEUR ANGENOT

126-312D. LE ROMAN AVANT 1939. L'étude sera orientée vers la recherche d'une définition du genre à travers quelques-unes de ses manifestations dans la littérature française contemporaine. On abordera diverses questions de construction romanesque: personnages, temporalité, décor, psychologie, etc. On examinera: la crise du roman aux lendemains du naturalisme; les voies nouvelles: le roman fleuve, le roman poétique; puis le roman chrétien, le roman dit de la condition humaine et le nouveau roman.
PROFESSEUR RICARD

126-317A. LA POESIE AU XXe SIECLE. L'étude de la poésie française au XXe siècle commencera avec Paul Valéry et les néo-symbolistes. Puis le pseudo-cubisme sera abordée avec Guillaume Apollinaire et P. Reverdy, l'aspect "machiniste-expressioniste" de l'époque étant représenté par Blaise Cendars. Près de ces mouvements, une tendance plus métaphysique sera illustrée par J. Supervielle et Saint-John Perse, tandis que Guillevic, Schéhadé et Michaux nous conduiront à la poésie de notre temps. Les thèmes de la Résistance auront leur place avec Aragon.
PROFESSEUR JONES

126-324A. LA TRAGEDIE CLASSIQUE. Une étude de la dramaturgie classique et des grands auteurs dramatiques, illustrée dans le genre de la tragédie.
PROFESSEUR VAN DELFT

126-329D. LE ROMAN QUEBECOIS CONTEMPORAIN. Etude de l'évolution de la technique romanesque au Québec depuis 1954. Essai et définition du Roman-Poème. Analyse et signification des techniques romanesques utilisées par les romanciers québécois.
PROFESSEUR BOUCHER

126-330A. REALISME ET NATURALISME. De Balzac à Zola et Maupassant: Naissance et développement de la vision réaliste; évolution vers le roman expérimental, et illustration par l'étude d'œuvres significatives.
PROFESSEUR DUQUETTE

126-331B. REALISME ET NATURALISME. *(Prérequis:* 126-331A sauf permission du C.E.S.G.) De Balzac à Zola et Maupassant: Naissance et développement de la vision réaliste; évolution vers le roman expérimental, et illustration par l'étude d'œuvres significatives.
PROFESSEUR DUQUETTE

126-333A. LE THEATRE QUEBECOIS. (Ne sera pas donné en 1973-74.) Etude de pièces représentatives du théâtre québécois contemporain: littérature, langue, société.
STAFF

126-334B. LE CINEMA QUEBECOIS. Etude thématique du cinéma québécois à travers ses principaux films. Les approches seront: poétique, sociologique, psychologique et politique.
M. JULIEN

126-336A. LA LITTERATURE AU XVIIIe SIECLE. Ce cours aura pour but de présenter une image de la société du 18e siècle à travers un éventail de textes. On mettra un premier accent sur le théâtre, genre qui a joui d'une faveur particulière à l'époque et qui rend vite accessible son climat littéraire. Une étude du roman permettra de tracer l'évolution du sentiment au 18e siècle et donnera un aperçu de l'être humain présenté dans le cadre d'un réalisme narratif. Ces deux courants principaux seront complétés par un examen d'ouvrages dits "philosophiques", afin de mettre l'étudiant en rapport avec certaines idées sociales, politiques et scientifiques du siècle des lumières.
PROFESSEUR CARTWRIGHT

126-337B. LA LITTERATURE AU XVIIIe SIECLE. *(Prérequis:* 126-336A sauf permission du C.E.S.G.) Même description que ci-dessus.
PROFESSEUR CARTWRIGHT

126-341D. CIVILISATION FRANÇAISE DE LA REVOLUTION A LA IIIe REPUBLIQUE. Ce cours n'est ni un cours d'histoire, ni de littérature. Il se propose de faire la synthèse de l'histoire politique, économique, sociale et culturelle de la période 1789-1875.
PROFESSEUR LAUNAY

126-342D. EVOLUTION ET STRUCTURES DE LA LANGUE FRANÇAISE. (Ne sera pas donné en 1973-74.) Histoire de la langue française, du bas-latin à la langue moderne. Etude de l'évolution phonétique, syntaxique, sémantique. Etude de textes des différentes époques.
STAFF

126-345D. STYLISTIQUE COMPAREE DU FRANÇAIS ET DE L'ANGLAIS. Par une étude systématique des contrastes entre les structures linguistiques de l'anglais et du français, les étudiants seront amenés d'une part à développer leur sensibilité aux problèmes stylisti-

ques, d'autre part à découvrir, sur le plan théorique et pratique, les principes scientifiques de la traduction. STAFF

126-347D. LANGAGE ET METHODOLOGIE LITTERAIRE. Ce cours s'adresse aux étudiants anglophones. Il offre une étude des phénomènes de synonymie, des effets intellectuels et affectifs, destinés à sensibiliser l'étudiant étranger aux différents niveaux de la langue en français. D'autre part, une acquisition systématique du vocabulaire étudié en contextes vise à l'enrichissement de la langue. Parallèlement à ces exercices de stylistique, on étudiera, à travers leurs textes, les différentes méthodes des principaux représentants de la critique littéraire en France jusqu'à nos jours. Mme PASCAL

126-354B. LA COMEDIE CLASSIQUE. Réservé aux étudiants Honours. En centrant le cours sur l'œuvre de Molière et de ses précurseurs, on étudiera le développement du comique théâtral français du XVIe siècle à la fin du XVIIIe siècle. PROFESSEUR VAN DELFT

126-356D. LA LITTERATURE DE LA RENAISSANCE. Réservé aux étudiants Honours. Un cours panoramique sur la littérature de la Renaissance, de Marot à Montaigne. Les lectures obligatoires seront complétées par des lectures facultatives ayant trait notamment aux courants d'idées et à la poésie. Les étudiants seront en outre invités à entreprendre soit individuellement, soit en petits groupes, une recherches *guidée* sur un sujet qui les intéresse. PROFESSEUR McGILLIVRAY

126-361D. ROMAN QUEBECOIS I. Réservé aux étudiants Honours. Naissance du roman d'aventure et de récit fantastique; étude de mœurs et romans de la terre: évolution du roman paysan. PROFESSEUR DUQUETTE

126-363D. REALISME ET NATURALISME. Réservé aux étudiants Honours. Les "écoles" réaliste et naturaliste dans la seconde moitié du dix-neuvième siècle. Les principes, leurs fondements et leur portée. Illustration, par l'étude systématique d'œuvres caractéristiques des plus grands écrivains, essentiellement des romanciers (Flaubert, Maupassant, Zola, etc.). PROFESSEUR FURLAN

126-364D. LA POESIE QUEBECOISE. Réservé aux étudiants Honours. Panorama de la poésie québécoise des origines à nos jours; nous examinerons les rapports entre poésie et société aux divers moments de l'histoire. Au XIXe siècle: l'école de Québec, Crémazie, Fréchette; au XXe siècle: l'école de Montréal, Nelligan, le poète de la solitude; nous terminerons ce cours en analysant les œuvres majeures du mouvement de l'hexagone; celles de Gaston Miron, de Paul-Marie Lapointe, de Roland Giguère, etc. M. MAUGEY

126-375D. LE ROMAN AVANT 1939. Réservé aux étudiants Honours. Ce cours aura pour objet, en partant des œuvres étudiées, de dégager les tendances principales et fort diverses d'une des grandes époques du roman français. Nous tenterons, en utilisant différentes approches (thématique, psychanalytique, sociologique, etc.) de cerner l'originalité de chaque texte tout en le reliant à la tradition romanesque et aux formes d'aujourd'hui. PROFESSEUR COLLET

126-376A. LE THEATRE AU XXe SIECLE. Réservé aux étudiants Honours. La fantaisie qui suivit la première guerre mondiale sera traitée à travers l'unanimisme de J. Romains et l'impressionnisme de Giraudoux, puis ce sera la gravité de Salacrou et de Claudel. Au terme de la deuxième guerre, on étudiera l'engagement existentialiste chez Sartre, Camus et Genet, avant de considérer l'attitude expressionniste de Ghelderode qui nous conduira au "théâtre de l'absurde". La forme expérimentale de l'expression dramatique sera représentée par Raymond Roussel et par Arrabal. PROFESSEUR JONES

126-377B. LE THEATRE AU XXe SIECLE II. Réservé aux étudiants Honours. *Prérequis:* 126-376A sauf permission du C.E.S.G. La fantaisie qui suivit la première guerre mondiale sera traitée à travers l'unanimisme de J. Romains et l'impressionnisme de Giraudoux, puis ce sera la gravité de Salacrou et de Claudel. Au terme de la deuxième guerre, on étudiera l'engagement existentialiste chez Sartre, Camus et Genet, avant de considérer l'attitude expressionniste de Ghelderode qui nous conduira au "théâtre de l'absurde". La forme expérimentale de l'expression dramatique sera représentée par Raymond Roussel et par Arrabal. PROFESSEUR JONES

126-390D. TENDANCE CONTEMPORAINE DE LA CRITIQUE LITTERAIRE. Réservé aux étudiants Honours. Ce cours vise à mettre en lumière les tendances principales de la critique depuis Bachelard: phénoménologie, existentialisme, psycho-critique, thématique, sociologie, structuralisme. Le travail sera centré sur l'étude approfondie de quelques œuvres critiques particulièrement significatives. PROFESSEUR ANGENOT

126-400D. STYLISTIQUE AVANCEE. (Ne sera pas donné en 1973-74.) Continuation de l'étude systématique des différents modes d'expression dans le complexe message-contexte, avec recours à la stylistique comparée (Français-Anglais). Etude plus particulière des techniques stylistiques littéraires, avec examen d'œuvres représentatives. Notions de description formelle et de typologie. STAFF

126-414A. LE SYMBOLISME. Symbolique et symbolisme; la philosophie du romantisme et le renouveau de la pensée symbolique — Baudelaire. Le courant symboliste et l'"école" sym-

boliste: le débat théorique; la poésie symboliste; le théâtre symboliste et la wagnérisme en France
PROFESSEUR MORISOT

126-415B. LE SURREALISME. Les grands précurseurs du surréalisme seront rappelés: Sade, Lautréamont, Rimbaud, Jarry. Etude du dadaïsme: naissance de l'anti-littérature et de l'anti-art. Passage du dadaïsme parisien au surréalisme (1922-24). Formation de l'école surréaliste Importance accordée à l'art. Le surréalisme et la psychanalyse. Aspects mystique et politique du mouvement. Sc ssions et rapprochements avec d'autres groupes. Reprise de l'expérience entre 1946 et 1950. Répercussions à l'étranger.
PROFESSEUR JONES

126-417A. LA PLEIADE. Etude de l'école poétique groupée autour de Ronsard et de Du Bellay: renouveau de l'expression poétique en France et problèmes du rapport entre la langue et l'œuvre littéraire.
PROFESSEUR TERRASSE

126-421A. LE NOUVEAU ROMAN. (Ne sera pas donné en 1973-74.) Tout en replaçant le mouvement littéraire du "Nouveau Roman" dans sa perspective historique, on mènera dans ce séminaire une analyse du phénomène qui sera fondée sur les problèmes de forme et de fond que pose le roman dans la société moderne.
STAFF

126-422D. HISTOIRE DES DOCTRINES LITTERAIRES DU XVIe SIECLE A NOS JOURS. Etude de textes de caractère théorique exprimant le développement des grands mouvements littéraires depuis la Renaissance jusqu'à la période contemporaine. Ce cours permettra une présentation raisonnée de l'histoire de la littérature.
PROFESSEUR TERRASSE

126-432D. POESIE QUEBECOISE CONTEMPORAINE.
STAFF

126-433A. LES CHANSONNIERS QUEBECOIS. De l'inspiration folklorique à la musique "pop". Sources, thèmes et originalité de la chanson québécoise des dernières années: Félix Leclerc, Jean-Pierre Ferland, Gilles Vigneault, Robert Charlebois.
STAFF

126-436D. EVOLUTION DES IDEES AU QUEBEC AU XIXe SIECLE. Les grands courants idéologiques du XIXe siècle et leur constante influence sur la littérature de cette époque: le voltairianisme, le libéralisme, grandeur et décadence des "Rouges", Tardivel ou l'ultramontanisme, Buies ou la libre pensée, etc.
STAFF

126-441D. LA FRANCE CONTEMPORAINE: EVOLUTION ECONOMIQUE, SOCIALE ET POLITIQUE DEPUIS 1870.

Les trois principaux centres d'intérêt seront:

1. La France à l'heure du Marché Commun: situation économique et sociale, planification.
2. Les institutions politiques et sociales en vigueur: Constitution, Parlement, partis, syndicats, Sécurité sociale, système judiciaire, etc.
3. Les crises de la démocratie républicaine depuis un siècle: effets sur l'éducation nationale et les forces religieuses.

STAFF

126-442D. EVOLUTION DE LA LANGUE FRANÇAISE AU CANADA. (Ne sera pas donné en 1973-74.) Le franco-canadien (ou franco-québécois) à partir de 1760. Etude des rapports entre l'évolution de la société et l'évolution de la langue. Le cours est conçu pour donner aux étudiants l'occasion d'effectuer des recherches personnelles.
STAFF

126-445D. PROBLEMES DE TRADUCTION. Ce cours portera, avec un minimum d'appareil théorique, sur les problèmes que pose la traduction, particulièrement dans le domaine littéraire. Donné sous la forme de travaux pratiques, il permettra aux étudiants de mieux maîtriser leur langue et d'affiner leur perception des problèmes sémantiques et stylistiques.
PROFESSEUR CARTWRIGHT

126-447D. PROBLEMES LITTERAIRES. Ce cours dont le contenu sera déterminé chaque année par le C.E.S.G. après consultation des étudiants et des professeurs permettra de traiter un certain nombre de questions littéraires dont la nature échappe au découpage traditionnel des programmes. Ces questions toucheront aux genres, aux thèmes ou à des problèmes de langage ou de critique et leur choix sera fonction des intérêts des membres du Département.
PROFESSEUR McGILLIVRAY

126-455D. INTRODUCTION A LA LANGUE ET A LA LITTERATURE MEDIEVALES. Réservé aux étudiants Honours.

1er trimestre:

Il s'agit de faire une première connaissance directe, à l'aide d'une anthologie, avec les différents genres littéraires qui constituent l'ensemble de la production médiévale. Des séances seront dédiées au système de la langue.

2e trimestre:

Le 2e trimestre sera dédié à la lecture des aventures de Renard le "goupil". Sujet de discussion: la parodie et la satire dans l'épopée animale.
PROFESSEUR DI STEFANO

126-458B. LA LITTERATURE FANTASTIQUE. Réservé aux étudiants Honours. Ce cours tentera de définir le fantastique en l'opposant successivement à l'étrange et au merveilleux. A travers les œuvres choisies, les thèmes du fantastique seront analysés et différenciés.
Mme PASCAL

126-460D. LE CLASSICISME. Réservé aux étudiants Honours. Etude d'œuvres marquantes du "siècle d'or" français, et de leurs rapports avec la civilisation du dix-septième siècle. Ce cours s'adresse aux étudiants qui, après les vastes synthèses des cours d'introduction, désirent cerner de plus près la pensée et l'art des grands auteurs classiques. Ceux-ci sont moins des "monuments historiques" que des écrivains toujours actuels.
PROFESSEUR VAN DELFT

126-461D. ROMAN QUEBECOIS II. Réservé aux étudiants Honours. Evolution du roman québécois depuis la rupture de 1945 jusqu'à la floraison des années 1960-1970. On s'attachera aux problèmes de technique narrative, à l'évolution du héros romanesque ainsi qu'au développement des thèmes nouveaux. Aussi, on tentera de saisir l'originalité du roman québécois par rapport à l'Europe et à l'Amérique. PROFESSEUR RICARD

126-462D. LES ESSAYISTES QUEBECOIS: EXPLOSION DE LA PENSEE DEPUIS BORDUAS. Réservé aux étudiants Honours. Après un survol des idéologies au Québec, on s'attachera à saisir, à travers l'étude d'un certain nombre d'essais, l'évolution des idées. On s'initiera ainsi à un genre littéraire aussi florissant chez nous que chez les autres, mais assez mal connu. PROFESSEUR ETHIER-BLAIS

126-478D. ATELIER PRATIQUE DE THEATRE. Réservé aux étudiants Honours. Etude pratique de l'adaptation du texte aux conditions matérielles du théâtre. Théâtre et créativité: interprétation verbale et correspondance cinétique. L'homme et le texte dramatique: le héros, personnage, acteur, spectateur. Mme BARRET

126-490D. HONOURS TUTORIAL. Réservé aux étudiants Honours. STAFF

126-491B. SEMINAIRE SPECIALISE DE LITTERATURE FRANÇAISE. Réservé aux étudiants Honours. Ce séminaire est destiné aux étudiants de troisième année universitaire (U3) inscrits dans le programme Honours. Il constitue une préparation aux séminaires de recherche du niveau gradué et remplace pour les étudiants qui le suivent le *Tutorial*. Le sujet en sera déterminé par le C.E.S.G. chaque année en consultation avec les étudiants et les professeurs, en fonction des intérêts et des possibilités de chacun. Il sera restreint à un problème de littérature, de stylistique ou de théorie littéraire traité en profondeur.
PROFESSEUR MORISOT

126-492A. SEMINAIRE SPECIALISE DE LITTERATURE QUEBECOISE. Réservé aux étudiants Honours. Ce séminaire est destiné aux étudiants de troisième année universitaire (U3) inscrits dans le programme Honours. Il constitue une préparation aux séminaires de recherche du niveau gradué et remplace pour les étudiants qui le suivent le *Tutorial*. Le sujet en sera déterminé par le C.E.S.G. chaque année en consultation avec les étudiants et les professeurs, en fonction des intérêts et des possibilités de chacun. Il sera restreint à un problème de littérature, de stylistique ou de théorie littéraire traité en profondeur. STAFF

FRENCH AS A SECOND LANGUAGE (127)

3438 McTavish Street, Room 205, Telephone 392-5727;
Office hours: 9 a.m. to 1 p.m.

The department offers French language courses of a practical nature, for those who will be required to use the language in future, whether in Quebec or elsewhere.

Grades are awarded on the basis of term work, regular tests, and an oral examination.

Eligibility

127-401D is open to any students, *from Quebec or elsewhere,* in their *final or penultimate year of undergraduate studies* in any Faculty and degree program.

ADMISSION BY INTERVIEW ONLY, AT REGISTRATION.

127-201D, -211D, -221D are open only to students *who attended High School outside Quebec Province.* Students may be from any Faculty and degree program and will be admitted to the appropriate level after an interview at Registration and tests given at the beginning of term.

Registration

Numbers are limited in all classes; in order to be sure of a place students from all Faculties must register with this department during the official registration period.

Accelerated Sequence of Courses

Students who have achieved very good results in 127-201D or 127-211D may be considered for admission directly to 127-401D.

Course Descriptions

127-201D. INTENSIVE BEGINNERS' FRENCH. (For students from outside Quebec Province.) (6 credits. 6 hours including language laboratory.) Open to students in any degree program having no previous knowledge of French. *Text:* Politzer, Hagiwara, Carduner, L'ECHELLE: Ginn, and laboratory workbook.
B. SHEPPARD & STAFF

127-211D. ORAL & WRITTEN FRENCH I. (For students from outside Quebec Province.) (6 credits. 3 hours + language laboratory.) Open to students in any degree program having only an elementary knowledge of French. Grammar review, comprehension, vocabulary, conversation. *Text* to be announced.
B. SHEPPARD & STAFF

127-221D. ORAL & WRITTEN FRENCH II. (For students from outside Quebec Province.) (6 credits. 3 hours + language laboratory.) For those having taken 211D or equivalent. Comprehension, discussion, reading, grammar review. *Text* to be announced.
N. LEGALL & STAFF

127-401D. FUNCTIONAL FRENCH. (For *any* students in their final or penultimate year of undergraduate studies.) (6 credits. 5 hours.) An intensive course in conversational French, in groups of 8 students. For those with an adequate theoretical knowledge of the language who need to improve comprehension and expression through practice.
R. LECLERCQ, H. MIGNAULT & STAFF

GEOGRAPHY (183)

Burnside Hall,
Dept. Chairman: Room 510, Phone 392-5489
General Inquiries: Room 513, Phone 392-5700

The Geography Department offers degrees in both the Faculty of Arts and the Faculty of Science. For a full description of the courses and for an outline of the nature of Geography and the opportunities for study in this discipline, the student should consult the listings under Geography in the Faculty of Science section of the calendar (page 193).

B.A. students planning to take an Honours or a Major in Geography should arrange an interview with the departmental chairman or his representative at least one week before registration.

B.A. Major in Geography

General Inquiries: Room 513, Burnside Hall, 392-5700
Advisers: Professor B. Massam, Room 417, 392-4720
Professor G. Ewing, Room 418, 392-4720

36 approved credits in Geography. 18 approved credits in related subjects from the Social Sciences. The Geography courses must include:
Geography 183-201A, 202B, 214A, 216A, 203D and 6 credits of regional courses.

B.A. Major in Geography (Special Programs)

Note — Courses that should be taken in U1 are underlined.

CULTURAL ECOLOGY

Geography 183-201A, 214A, 215B, 203D, 312B, 317B, 319A, 324B, 451D (or Biology 177-305A and 328B or Biology 177-305A and Geography 183-300B)
Biology 177-E10D, 245B, 348D, 328D or Geography 183-451D
Anthropology 151-E21A, 206B — 57 credits

GEOGRAPHY OF ECONOMIC ACTIVITY

Geography 183-201A, 202B, 216A, 217B, 301D, 314A, 315B, 318B, 351A
Economics 154-200D, 300A, 301A, 313A plus 9 other approved credits — 54 credits

HUMAN GEOGRAPHY OF THE INDIANS AND ESKIMOS IN CANADA

Geography 183-201A, 202B, 203D, 214A, 215B, 301D, 316A, 402D
Anthropology 151-E21A, 347A, 336A, 424A
Linguistics 104-240A
Economics 154-200D 54 credits

REGIONAL GEOGRAPHY

Geography 183-201A, 202B, 203D, 214A, 216A, 217B, 301D, 303D, 306A, 308B, 314A, or 317B plus 9 approved credits 54 credits

URBAN SYSTEMS

Geography 183-201A, 202B, 216A, 217B, 314A, 316A, 351A (or one of Computer Sciences 308-200A, 200B, 220A-220B), 412B
Architecture 301-205A, 232A, 235A, 431A, 433A, 434B, 133B (Engineering)
Anthropology 151-E22B, 321B, 421A
Economics 154-200D, or 250D, 468D
Sociology 166-222B 57 credits

B.A. Honours in Geography

General Inquiries: Room 513, Burnside Hall, 392-5700
Adviser: Professor B. Massam, Room 417, 392-4720

The Geography Department offers two streams in the B.A. Honours Sequence — Economic/Urban and Cultural. The courses are very similar in the first year but the student must choose between the two streams before the beginning of his second year.

B.A. HONOURS — ECONOMIC/URBAN STREAM

First year: Geography 183-201A, 202B, 203D, 214A, 216A, 217B and 9 approved credits
Second and Third year: Geography 183-350B, 351A, 481A, 482D
3 credits in Regional Geography, 15 approved credits in Urban and/or Economic courses, and 27 approved credits.

B.A. HONOURS — CULTURAL STREAM

First year: Geography 183-201A, 202B, 203D, 214A, 215B, 216A and 9 approved credits
Second year: Geography 183-350B, 351A, 481A; either 305A and 307B or two of 217B, 306A, 308B; 301D or 303D or 304A and 317B; and 9 approved credits
Third year: Geography 183-482D; 402D or 451D; (317B and 414A) or (314A or 316A and 315B) and 12 approved credits

For detailed descriptions of Geography courses see under Faculty of Science, page 193.

There are no prerequisites in geography for entrance to the Majors or Honours B.A. or B.Sc. in Geography. Arts students should include six credits of Mathematics in their CEGEP or pre-university programs. Students who have completed college or pre-university Geography courses fully equivalent to those at First year university may substitute other approved courses as part of their Majors or Honours programs.

GERMAN (129)

Departmental Office, Room 613, Samuel Bronfman Bldg., 392-5091

NOTE: Students may begin at the Intermediate or Advanced level in their first year if they have taken German courses in High school or in CEGEP or in a McGill Summer Session. During the six week Summer Sessions, the following courses are offered every year: 202D, 252D, and 302D.

By registering in German 129-200D-250D, a student may pass the Beginners' and the Intermediate level in one academic year. By registering in 129-200D-250D and an advanced level summer course, a student may complete all three levels in one year and proceed to senior literature and philology courses in his second year.

Students with German background should consult the Chairman in order to find out for which level they should register.

Honours in German

Prof. A. Arnold, Room 613, Samuel Bronfman Bldg. 392-5091

The Department offers an Honours Program in German and Joint Honours with nine Departments. In Single Honours, a student normally takes German 200D-250D or 251D plus one of German 210A, 211B, 212D, 260D, 261A, 262B in his first year. In his second year he takes 18, in his third year 24 approved credits in German.

A student may register for Single or Joint Honours in his second year if he has assembled the necessary credits in German. Some courses can be taken during the Summer Session.

Joint Honours Programs

Prof. A. Arnold, Room 613, Samuel Bronfman Bldg. 392-5091

Joint Honours are possible with the following Departments: Classics, English, French, History, Italian, Linguistics, Philosophy, Russian, Spanish. Students enrolled in Joint Honours are requested to take 12 credits in German each year in consultation with the Department.

Major in German

Prof. A. Arnold, Room 613, Samuel Bronfman Bldg. 392-5091

42 credits in German and 12 credits in a related field (another language, History, Linguistics, Philosophy, etc.). The courses are to be selected in consultation with the Department.

Junior Year Abroad

Prof. H. Richter, Room 617, Samuel Bronfman Bldg. 392-5094

Second year Honours students are eligible. They will study at a German-speaking European University and receive full credit for the year. Detailed information can be obtained from the Department.

Beginners' Level

A. EMPHASIS ON LANGUAGE

129-200D-250D. GERMAN LANGUAGE. INTENSIVE BEGINNERS' COURSE. (10 hours; *Prerequisite:* none.) This course is designed for those who want to speak German fluently within one year; students having passed this course will be admitted to advanced and some senior courses in the Department. Not given in 1972-1973.

129-201D. GERMAN LANGUAGE. ACCELERATED BEGINNERS' COURSE. (6 Credits; 5 + 1 hours; *Prerequisite:* none.) *Texts:* H. Kessler: *Deutsch für Ausländer* (Parts 1, 1a); H. Wittmann: *Workbook in Beginning German.* An audiovisual course. The stress is on oral comprehension and expression. DR. HSIA AND STAFF

129-202D. GERMAN LANGUAGE. BEGINNERS' COURSE. (6 Credits; 3 + 1 hours; *Prerequisite:* none). *Text:* Curts, Groenke, Vail: *German for Beginners.* A solid, traditional method. The stress is on oral and written comprehension and expression. DR. BIRCHER AND STAFF

129-203D. GERMAN LANGUAGE. BEGINNERS' COURSE. (6 Credits; 3 hours; *Prerequisite:* none.) *Text:* Jannach: *German for Reading Knowledge.* The stress is on written comprehension. Recommended for B.Sc. students, engineers, graduate students. DR. SCHMIDT AND STAFF

129-004D. GERMAN READING COURSE. METHOD AND PRACTICE OF TRANSLATION. (No Credit; 2 hours; *Prerequisite:* none.) *Text:* C. V. Pollard: *The Practical Solution to German Translation.* Recommended for Ph.D. candidates preparing to fulfill the Language Requirement. DR. BLOCK

B. EMPHASIS ON LITERATURE AND CIVILIZATION

129-210A. GERMAN LITERATURE IN TRANSLATION. (3 Credits; 3 hours; *Prerequisite:* none; in English.) Recommended for students taking a Beginners' Language Course concurrently. Major works from Goethe to the end of the 19th Century will be discussed. DR. SCHMIDT

129-211B. GERMAN LITERATURE IN TRANSLATION. (3 Credits; 3 hours; *Prerequisite:* none; in English.) Recommended for students taking a Beginners' Language Course concurrently. Major works of the 20th Century will be discussed (Mann, Kafka, Brecht.) DR. SCHMIDT

129-212D. GERMAN LIFE AND INSTITUTIONS (6 Credits; 3 hours; *Prerequisite:* none; in English.) Not given in 1973-74.

Intermediate Level

A. EMPHASIS ON LANGUAGE

129-251D. GERMAN LANGUAGE. ACCELERATED INTERMEDIATE COURSE. (6 Credits; 5 + 1 hours; *Prerequisite:* German 201D or equivalent.) *Texts:* Schulz-Sundermeyer: *Deutsche Sprachlehre für Ausländer;* several shorter literary works. Students completing this course will be admitted to any senior course in the Department. DR. MAITRE AND STAFF

129-252D. GERMAN LANGUAGE. INTERMEDIATE COURSE. (6 Credits; 3 + 1 hours; *Prerequisite:* 202D or equivalent.) *Texts:* Sparks-Vail: *German in Review;* Richmond-Kirby: *Auslese.* The stress is on oral and written comprehension and expression. DR. LACH AND STAFF

129-253D. GERMAN LANGUAGE. INTERMEDIATE COURSE. (6 Credits; 3 hours; *Prerequisite:* German 203D or equivalent.) *Texts:* Bergethon: Grammar for Reading German. *A Second Year Workbook;* Luyster: *Naturforschung von Heute;* newspapers and periodicals. The stress is on comprehension of scientific texts. DR. SCHMIDT AND STAFF

129-254D. GERMAN LANGUAGE. ADVANCED INTERMEDIATE COURSE. (6 Credits; 3 + 1 hours; *Prerequisite:* high marks in 202D or two years of German at the Highschool or CEGEP level or equivalent.) *Texts:* Lehmann, Rehder, Shaw and Werbow: *Review and Progress;* short novels and stories. DR. BLOCK

B. EMPHASIS ON LITERATURE AND LINGUISTICS

Text lists for and details about all of the following courses are available from the German Department office.

One or two of the following courses are usually taken by students who are concurrently registered in 251D.

129-260D. INTRODUCTION TO GERMAN LITERATURE. (6 Credits; 3 hours; *Prerequisite:* 201D or equivalent or permission of the Department.) *Texts: Kompass 3;* several literary works. DR. LACH

129-261A. DESCRIPTIVE GERMAN GRAMMAR. (3 Credits; 3 hours; *Prerequisite:* 201D or an intermediate language course or permission of the Department.) DR. GOLDSCHMID

129-262B. DESCRIPTIVE GERMAN LINGUISTICS. (3 Credits; 3 hours; *Prerequisites:* 201D and 261A or an intermediate language course or permission of the Department.) DR. GOLDSCHMID

Advanced Level

A. EMPHASIS ON LANGUAGE

129-301D. FUNCTIONAL GERMAN. (6 Credits; 5 hours; *Prerequisite:* 251D or 250 — 300 hours of German or equivalent or permission of the Department.) Discussion of newspaper articles (Die Zeit, Der Spiegel), literary texts (selected by each group), and general topics. The stress is on vocabulary building and on fluency of speech. DR. SCHUSTER AND STAFF

129-302D. FUNCTIONAL GERMAN. (6 Credits; 5 hours; *Prerequisite:* 252D or 254D or 200 hours of German or equivalent.) Aim of the course: same as in 301D. DR. SCHUSTER AND STAFF

B. EMPHASIS ON LITERATURE

129-310D. GERMAN LITERATURE FROM LESSING TO BRECHT. (6 Credits; 3 + 1 hours; *Prerequisite:* 251D or 252D or 200 hours of German or equivalent.) *Texts:* Several plays, "Novellen" and anthologies. DR. RICHTER AND STAFF

Senior Courses
(Literature, Linguistics, Philology, Stylistics)

NOTE: Text lists for and details about all of the following courses are available from the Departmental office.

Prerequisites for all senior courses are German 250D or 251D or any course at the advanced level or permission of the Department.

A. LITERATURE

129-350D. GERMAN LITERATURE IN THE NINETEENTH CENTURY (1830-1880). (6 Credits; Not given 1973-74.) DR. BLOCK

129-360A. GERMAN LITERATURE IN THE TWENTIETH CENTURY I. (3 Credits.) DR. BLOCK

129-361B. GERMAN LITERATURE IN THE TWENTIETH CENTURY II. (3 Credits.) DR. BLOCK

129-362A. GERMAN LITERATURE IN THE TWENTIETH CENTURY III. (3 Credits.) DR. MAITRE

129-363B. GERMAN LITERATURE IN THE TWENTIETH CENTURY IV. (3 Credits; Not given 1973-74.) STAFF

The topics of these courses vary from year to year. Check the Departmental text list for the topics offered in 1973-1974.

129-380A. GERMAN LITERATURE OF THE ENLIGHTENMENT. (3 Credits; Not given 1973-74.)

129-381B. GERMAN LITERATURE OF THE "STURM UND DRANG" PERIOD. (3 Credits.) DR. HSIA

129-390D. HONOURS TUTORIAL. (6 Credits.) DR. HSIA

129-450A. THE CLASSICAL PERIOD IN GERMAN LITERATURE. (3 Credits; Not given 1973-74.)

129-451B. GERMAN ROMANTICISM. (3 Credits.) DR. SCHUSTER

129-460A. GERMAN LITERATURE IN THE AGE OF THE REFORMATION. (3 Credits.) DR. BIRCHER

129-461B. GERMAN LITERATURE OF THE BAROQUE PERIOD. (3 Credits.) DR. BIRCHER

129-490D. SPECIAL SUBJECT (Honours Tutorial). (6 Credits.) DR. ARNOLD

B. PHILOLOGY AND LINGUISTICS

129-370A. GERMANIC PHILOLOGY. (3 Credits.) A survey of the history of the Germanic languages from their Indo-European origin until the end of the Germanic migrations. The main topics of study will be the Germanic sound shift, West Germanic phonological developments and the emergence of the West Germanic dialects. The course will be given in English. DR. KULLY

129-371B. HISTORY OF THE GERMAN LANGUAGE. (3 Credits.) An outline of the history of the language from Charlemagne to the present. The main developments in phonology, syntax and lexicon will be covered together with the essentials of the cultural background. DR. KULLY

129-500B. READINGS IN A GERMANIC LANGUAGE (Gothic, or Old Icelandic, or Old Saxon. (3 Credits; Not given 1973-74.)

129-501A. INTRODUCTION TO OLD HIGH GERMAN. (3 Credits.) DR. RICHTER

129-510A. MIDDLE HIGH GERMAN LANGUAGE. (3 Credits; Not given 1973-74.)

129-511B. MIDDLE HIGH GERMAN LITERATURE. (3 Credits.) DR. RICHTER

C. STYLISTICS

129-520A. ADVANCED COMPOSITION AND TRANSLATION. (3 Credits.) DR. LACH

129-521B. GERMAN STYLISTICS. (3 Credits.) DR. LACH

HISTORY (101)

General Office and Information: Room 625, Sixth Floor, Stephen Leacock Building
Telephone: 392-5192

Academic Advisers:

P. H. Boulle, E. S. Laffey, L. L. LaPierre, C. I. Miller, H. C. Schlieper, J. H. Thompson, H. S. Weinroth

The Department of History offers a wide range of courses in the history of such areas as Africa; Britain; Canada, with considerable emphasis being placed on French Canada and Québec; East Asia; Eastern Europe; France, Germany, Russia and the United States. In addition, courses are offered on such topics as International Relations, History of Medicine, Ethno-history of Canada, Jewish History and War and Society. Greek, Roman, and Islamic history are taught in other departments with which the Department of History is closely associated.

The Department offers two kinds of programs — Honours and the Major. The Honours program offers a high degree of specialization in history with much individual instruction to qualified students. The Major program provides for a measure of concentration in history in conjunction with an opportunity to take courses in other disciplines. Candidates who wish to study history as an Honours or Joint Honours subject, or who wish to major in History, must consult the Department as to their program. The general description of the Honours and Major programs will be found below.

Candidates in their second CEGEP-equivalent year may take: History 200D, 201A, 202D, 204D, 206D, 207D, 208D, 211A, 215D, 221B, 225D, 231B, 235D.

Candidates entering University as U1 students may take all courses at the 200 level and courses at the 300 level for which they have prerequisites.

Major in History

Director: Professor C. I. Miller
Office: Room 630, Stephen Leacock Building
Telephone Number: 392-4723

REQUIREMENTS:

Students who choose a Major in History should consult with the Department on or before the day of their formal registration at the University.

The History major generally consists of fifty-four (54) credits, determined by the History Department in consultation with the student. The Department offers students five different types of Program: an area major; thematic major; joint major with another department, interdisciplinary major and a period major (e.g. 19th century). Additional information is available at departmental offices.

Under normal circumstances candidates who have completed the major program in History will not be eligible to enter the graduate program of the History Department unless they are prepared to do qualifying work.

Honours in History

Director: Professor E. S. Laffey
Office: Room 610, Stephen Leacock Building
Telephone Number: 392-5187

REQUIREMENTS:

Students are reminded that owing to the transition to a three-year University, the Honours Programs of the Department might change somewhat in their Upper years due to possible alterations of some course offerings which may be necessary.

Candidates are required to arrange their individual programs in consultation with the Department at the beginning of each academic year and to maintain a high CGPA.

The Honours Programs in the History Department is divided into four major areas of concentration: the history of North America, the history of Great Britain, European history and East Asian history. Honours students are required to have a reading knowledge of such foreign language or languages as may be appropriate to their proposed course of study. Provision is made in the program for students to continue their studies in such a language into their Upper years.

In the U1 year, three courses in history which are appropriate to their field of interest are chosen. In the U2 and U3 years the program is designed to allow candidates to concentrate in their field of interest and to give them a full range of undergraduate courses in history. Candidates may offer appropriate courses in related disciplines in place of one of their history courses in the U2 and U3 years but they are normally expected to have completed eleven full courses in history in the three years of the Honours program.

In addition to the examinations in the subjects taken in the last year, U3 students, both Full and Joint Honours, will have a comprehensive oral examination on their whole field of historical study.

Candidates for the Honours degree may at the beginning of the U2 year choose to proceed in one of two ways:

a) They may offer History 490D/491D — a two-year tutorial program chosen from one of the following areas —
   England in the Age of Wycliff,
   England from the Restoration to the Accession of George IV,
   Selected topics in Canadian history,
   France in the 16th and 17th centuries,
   A topic in German history after 1800,
   Some aspects of the political history of the Balkans in the 14th and the 15th centuries,
   The Russian Revolutions of 1917,
   Topics in Jewish history,
   West African history,
   OR

b) They may choose to take one undergraduate seminar per year. (See page 114).

Joint Honours

The Department offers Joint Honours programs with the Departments of Philosophy, Political Science (International Relations and Comparative Government), Russian, Economics, English, Geography, German, and may arrange other programs with other Departments. Students should consult both Departments with regard to programs and registration in Joint Honours courses. Programs will be designed to fit the individual interests of candidates but normally require an equal number of Upper Year courses in both disciplines.

For information on the Honours program in East Asian Studies which is offered in conjunction with the History Department, see page 70.

Course Descriptions

101-200D. A HISTORY OF AFRICA. (6 credits; This course is not open to candidates who have previously taken History 210A and History 220B.) A study of African cultures from the beginning of the Iron Age to the contemporary emergence of African States, with emphasis on the period since 1780. Stress is placed on the political and cultural relations of African societies with each other, with Europe and with Islamic civilization. PROFESSOR ECHENBERG

101-201A. THE HISTORY OF LATIN AMERICA FROM PRE-COLUMBIAN TIMES TO THE 20th CENTURY. (3 credits; Not given 1973-74.) This course will deal with Latin America from the time of the Incas and Aztecs to the 20th century. The institutions of the colonial period will be examined, and special attention will be given to the political and economic problems of the emerging independent states in the 19th century. PROFESSOR CHARTERIS

101-202D. AN INTRODUCTION TO THE HISTORY OF CANADA. (6 Credits.) This course will be a survey of the evolution of Canada, from the pre-Columbian explorations to the end of the Second World War. Social, economic, political, and intellectual developments will all be considered in a general way. Special emphasis will be placed on the themes of French-English relations, regional particularism, Canadian-American relations, and the influence of technology on Canadian society. PROFESSOR THOMPSON

101-204D. HISTORY OF GREAT BRITAIN. (6 credits; Not given 1973-74.) Survey of the development of Britain since 1066. Emphasis will be placed on political changes, seen in relation to the economic, social and intellectual background. PROFESSOR CHARTERIS

101-206D. HISTORY OF EASTERN EUROPE (FROM 4th CENTURY). (6 credits.) The mediaeval principle of legitimacy and the formation of the first barbarian states: ecclesiastical schism and the political division of Eastern Europe; the conflicts of Byzantines, Germans, Osmanlis, and Slavs; social and economic development; Eurasianism and the interaction of Western, Byzantine, and Eastern cultures. PROFESSORS MLADENOVIC AND SCHLIEPER

101-207D. A HISTORY OF THE JEWS FROM LATE CLASSICAL TIMES TO THE PRESENT. (6 credits; *Prerequisite:* History 215D, possibly concurrently, is recommended.) A general introductory survey of the history of the Jewish people from late classical times to the present in the context of general world history. Emphasis will be placed on general trends and

developments, and special attention will be paid to areas of major Jewish settlement. The first term will deal with the period up to 1492, while the second term will cover the period from 1492 to the present. PROFESSOR SWETSCHINSKI

101-208D. THE DEVELOPMENT OF EAST ASIAN CIVILIZATION. (6 credits; Open to Upper year students with permission of instructor.) History and salient features (social, political, economic, and intellectual) of the traditional civilization of China and Japan, from earliest times to the mid-19th century. PROFESSORS BAMBA AND BURCHILL

101-211A. THE UNITED STATES TO 1865. (3 credits.) English colonization of North America, development of representative government, colonial wars and revolution, the Constitution, society and politics of the nineteenth century, and the Civil War. Emphasis is placed on Puritanism, the American Revolution, and the men who fashioned and guided the new republic. PROFESSOR RIGGS

101-215D [Formerly 105D]. EUROPEAN CIVILIZATION IN THE MEDIAEVAL AND MODERN PERIODS. (6 credits.) The mediaeval period is studied in terms of its typical institutions: the Empire, the Papacy, feudalism, the guild, the dynastic state, etc. In the modern period, main emphasis is laid on the emergence of the Great Powers, and the long-term problems, at home and abroad, which conditioned their policies. This course provides a preparation for the study of European history. PROFESSOR VOGEL

101-221B. THE UNITED STATES SINCE 1865. (3 credits; *Prerequisite:* History 211A or consent of instructor.) The growth of industry, reconstruction, populism and progressivism, World War I, the New Deal, and World War II. Stress is placed on the political and social consequences of industrialization and urbanization. PROFESSOR RIGGS

101-225D. A HISTORY OF FRANCE. (6 Credits.) A survey of French society since the fall of the Roman Empire, with particular emphasis on the post-mediaeval period and economic, social and political developments. PROFESSOR BOULLE

101-231B. HISTORY OF WESTERN EUROPEAN COLONIAL EXPANSION. (3 credits; Not given 1973-74.) This course is devoted to the colonial experience of the British, Dutch and Portuguese in the 17th and 18th centuries. PROFESSOR CHARTERIS

101-235D. A SURVEY OF GERMAN HISTORY. (6 credits.) This course will give an overview of German history from its beginnings to the present. Selected aspects will be dealt with in depth: the foundations of the Carolingian Empire; the Reformation; the era of the World Wars. The course is an introduction to the entire field and will include some discussion of historiography. PROFESSOR HOFFMANN

101-280D. MEDIAEVAL LIFE AND INSTITUTIONS. (6 credits.) The history of the Middle Ages is approached in terms of its typical institutions — the Church, the Holy Roman Empire, feudalism, the towns, the gilds, the representative system — with an analysis of the social groups attached to each. The crises which modified these institutions in the late Middle Ages are analysed as phases of the transition to the modern period of European history. PROFESSOR BAYLEY

101-304D. BRITISH IMPERIAL POLICY FROM 1783. (6 Credits; *Prerequisite:* History 201A or 204D or 231B or consent of instructor; Not given in 1973-74.) The composition and development of British policy, stressing the interplay between domestic attitudes and imperial needs and opportunities as demonstrated in humanitarian, missionary, intellectual, economic and strategic interests. PROFESSOR ————

101-305D. WAR AND SOCIETY IN MEDIAEVAL AND MODERN EUROPE. (6 Credits; *Prerequisite:* one general course in European history is desirable; Not given in 1973-74.) War in Roman, Carolingian, and feudal society; rise of permanent armies and navies; military institutions of eastern Europe; warfare from Wallenstein to Napoleon; emergence of the national army in Russia; the Western military tradition after Clausewitz; the Communist doctrine of war. PROFESSORS BAYLEY, MLADENOVIC AND VOGEL

101-306A. IMPERIAL RUSSIA. (3 Credits; *Prerequisite:* History 206D.) Major social, economic and political problems of Russian history since 1689. Reforms of Peter the Great, Westernisation of the Russian state, changing social structures in the 18th and 19th centuries, serfdom, emergence of industrial economy, Russia on the eve of World War I. PROFESSOR SCHLIEPER

101-308D. HISTORY OF CHINA. (6 Credits.) A survey course in the history of China from earliest times to 1911 with particular attention to social, intellectual and institutional change. PROFESSOR LAFFEY

101-311A. EMERGING MODERN AMERICA, 1876-1912. (3 Credits; *Prerequisite:* History 211A and/or History 221B, or equivalent, or consent of instructor.) Political, social, economic and diplomatic developments are explored in detail with stress upon historiography. PROFESSOR RIGGS

101-314D. TUDOR AND STUART ENGLAND. (6 Credits; *Prerequisite:* History 204D or consent of the instructor.) A study of English society, politics, and thought from the end of the Middle

Ages to the eighteenth century. Among the topics discussed are the developments of the English state: economic expansion; the religious revolution; the civil war and its consequences; the intellectual and social changes.
PROFESSOR MAXWELL

101-315D. CONTEMPORARY EUROPEAN HISTORY. (6 Credits; *Prerequisite:* any course in European history, e.g., 204D, 206D, 215D, 225D, 235D, or equivalent; Not given in 1973-74.) This course will be devoted to a study of major developments in the 19th and early 20th centuries. Special emphasis will be given to the French Revolution, the rise of the working classes, liberalism, nationalism, imperialism and the European balance of power.
PROFESSOR WEINROTH

101-316B. RUSSIA AND ASIA. (3 Credits; *Prerequisite:* History 206D.) The steppe empires and the impact of the Eurasian plain on Russian history. Tsarist expansion east of the Urals. Early Sino-Russian relations. Russian ventures into the Pacific and Alaska. Integration of Siberia into the Russian-Soviet state. Economic development of Asiatic Russia.
PROFESSOR SCHLIEPER

101-317D. JEWISH HISTORY FROM THE REFORMATION TO THE FRENCH REVOLUTION. (6 Credits; *Prerequisite*: History 207D or one course in Modern European History is recommended.) An examination of the main events, trends and issues in Jewish history in the context of the general background. The first term will be devoted to the Sephardic experience, the second to the Ashkenazi.
PROFESSOR SWETSCHINSKI

101-318D. A HISTORY OF JAPAN. (6 Credits; *Prerequisite:* History 208D or consent of the instructor.) A survey course in the history of Japan from the transmission of Buddhism (552 A.D.) to the 20th century, with particular attention to Tokugawa Japan. PROFESSOR BAMBA

101-321B. MODERN AMERICA, 1912-1960. (3 Credits; *Prerequisite:* History 311A or consent of instructor.) The United States in the modern era from Woodrow Wilson to John F. Kennedy. Emphasis is placed on conflicting interpretations of historians and on reform movements.
PROFESSOR RIGGS

101-323D. FRENCH CANADA FROM THE 17th CENTURY TO THE MIDDLE OF THE 19th CENTURY. (6 Credits; *Prerequisite:* History 202D or consent of instructor.) This course will approach the economic and social history of New France and pre-industrial Quebec as a case study for problems in colonial policies, population movements, rural economy, commercial capitalism, social stratification, collective attitudes and institutional change.
PROFESSOR DECHENE

101-324D. ENGLAND FROM THE GLORIOUS REVOLUTION UNTIL THE MID-VICTORIAN ERA. (6 Credits; *Prerequisite:* History 204D or consent of the instructor; Not given in 1973-74.) This course deals with the rise of parties, the evolution of Cabinet Government, and the growth of the Constitution in an age of material progress, revolutionary ideas, and social change.
PROFESSOR SENIOR

101-325D. WESTERN EUROPE FROM THE RENAISSANCE TO THE 18th CENTURY. (6 Credits.) A study of the development of political and social institutions, religion, and culture, e.g. the Italian communes and principalities; humanism; the Reformation; the scientific revolution of the 18th century; the changing character of social classes, the development of absolutism; the critical thought of the 18th century.
PROFESSOR SENIOR

101-328B. WAR AND DIPLOMACY IN THE EAST ASIAN SOCIETIES. (3 Credits; *Prerequisite:* History 208D or 308D or 318D or consent of instructor; Not given in 1973-74.) This course surveys the transformation of East Asian societies through war and diplomacy since the Opium War, leading up to the Communist revolution in China and modernization in Japan.
PROFESSOR BAMBA

101-334D. THE COMING OF THE FIRST WORLD WAR. (6 Credits; *Prerequisite:* Any course in modern European History; Not given in 1973-74.) While this course will deal principally with the diplomatic relations between the major European Powers and the various crises which disturbed European peace, it will also attempt to examine the political and social structure of the Great Powers and the bearing this had upon the course of international diplomacy.
PROFESSOR WEINROTH

101-336D. A HISTORY OF FRANCE SINCE 1789. (6 Credits.) A study of the major social, political, and cultural changes which France has undergone since the Revolution. Special emphasis will be placed on the struggle between religious and anti-clerical (or anti-religious) forces in the nineteenth century, on the history of revolutionary movements of the Left and of the Right, and on the transformations of these phenomena in the contemporary period.
PROFESSOR HELLMAN

101-342A. THE HISTORY OF CANADA'S EXTERNAL RELATIONS: 1867-1939. (3 Credits; *Prerequisite:* History 202D; This course is not open to candidates who have previously taken History 422D; Not given in 1973-74.) This course will examine the historical development of Canadian external relations before World War II. Particular emphasis will be placed on

Canadian-American relations, Canadian-Imperial relations, the growth of Canadian diplomatic autonomy and participation in the League of Nations. PROFESSOR MILLER

101-344A. THE ETHNOHISTORY OF NEW FRANCE. (3 Credits; *Prerequisite:* History 202D.) The methods and techniques of ethnohistory: an interdisciplinary approach to studying the history of peoples who have produced no written records of their own. These methods will be applied to a systematic investigation of interaction between Indians and Europeans in eastern Canada during the French regime. A reading knowledge of French is highly desirable.
PROFESSOR TRIGGER (of the Department of Anthropology)

101-345D. FRANCE IN THE 17th AND 18th CENTURIES. (6 Credits.) Selected topics in French internal history from the end of the Wars of Religion to the outbreak of the French Revolution. Topics to be selected after discussion with the class; emphasis to be placed on class participation, class presentations and class discussion. PROFESSOR BOULLE

101-352D. EMERGENCE OF ENGLISH CANADA, 1791-1867. (6 Credits; *Prerequisite:* History 202D or consent of instructor.) This course will be primarily concerned with the history of Upper Canada from its pioneer origins until Confederation. Special consideration will be given to immigration, urbanization and to relations with French Canada after the Union of 1841.
PROFESSOR SENIOR

101-353D. WAR AND SOCIETY IN CANADIAN HISTORY. (6 Credits; *Prerequisite:* History 202D; This course is not open to candidates who have previously taken History 372D.) The first half of this course will consist of lectures by members of the staff on various social problems which have arisen in the pursuit of war, the fighting of rebellions, the development of armed forces, and the attempts to cope with civil disobedience and terror. The second half of the course will be devoted to individual study through supervised and guided reading and research. STAFF

101-355D. GERMANY IN THE 19th CENTURY. (6 Credits; *Prerequisite:* History 235D or consent of the instructor; Not given in 1973-74.) German political, constitutional and social history, 1740-1914. Emphasis: the struggle of the two German Great Powers for control of Germany; Reform Era and Industrialization; the evolution of Prussian hegemony; diplomatic and social development leading to 1914. PROFESSOR HOFFMANN

101-362D. THE WEST IN CANADIAN HISTORY. (6 Credits; *Prerequisite:* History 202D.) This course will be an examination of the development of British Columbia and the Prairie Provinces from their initial exploration and settlement until the present. Political and economic developments will be considered, but emphasis will be placed primarily on the social and cultural history of the post-Confederation period. PROFESSOR THOMPSON

101-363D. CONTEMPORARY CANADA, 1890-1970. (6 Credits; *Prerequisite:* History 202D or equivalent, or consent of instructor; This course is not open to candidates who have previously taken History 302A and 312B.) This course will study Canadian social and political development since 1890. It will give particular attention to reform movements, third party protest, urbanization, regionalism, war, foreign policy (notably Canadian-American relations) and the Quiet Revolution. PROFESSOR MILLER

101-403D. REGIONAL, SOCIAL AND CULTURAL HISTORY OF QUEBEC. (6 Credits; *Prerequisite:* History 202D or consent of instructor. A reading and speaking knowledge of French is essential.) A study of the development of Quebec society since 1867. The objective of the course is to retrace this development, to define the meaning of ideas and behaviour which have developed in Quebec's specific physical, political, spiritual and cultural environment. Special attention will be given to the cultural development of modern Quebec. (Course to be given in French.) PROFESSOR ROY (of the French Canadian Studies Centre)

101-404D. HISTORICAL DEVELOPMENT OF THE INSTITUTIONS OF GREAT BRITAIN. (6 Credits; *Prerequisite:* History 304D or 314D or 324D or consent of the instructor; Not given in 1973-74.) PROFESSOR BAYLEY

101-405D. THE HISTORY OF EUROPEAN THOUGHT SINCE THE RENAISSANCE. (6 Credits.) This course begins with the Renaissance and studies various trends in European thought down to the present time. It is conducted primarily by means of discussions based on extensive reading in the sources — Erasmus, Luther, Descartes, Voltaire, Goethe, Comte, Marx, Nietzsche, Ellul, Beckett, etc. — and seeks an empathic understanding of each thinker as well as a grasp of the historical context, and influence, of his thought. PROFESSOR HELLMAN

101-406D. POLITICAL AND ECONOMIC HISTORY OF THE SOVIET UNION. (6 Credits; Save by special consent of the Department, this course is open only to students who have previously taken either History 206D or 306A and 316B.) Geopolitical background; Marxism-Leninism in theory and practice; evolution of constitutional, social, and legal systems; cultural trends; state planning, industrialization, and agrarian policies; labour, wages, and incentive; development of military power and the doctrine of war; monocentrism and polycentrism in the Communist bloc; economic and political relations with the world. PROFESSOR MLADENOVIC

101-407D. TECHNOLOGY AND SOCIETY IN MEDIAEVAL AND MODERN EUROPE: A HISTORICAL SURVEY. (6 Credits.) The technological leadership of the East; the period of borrowing and advance in Europe, 12th-16th centuries; the expansion of Europe and its repercussion; technology as an instrument of power and welfare in 19th century Europe; the effects of the diffusion and adoption of European technology in the non-European world.

PROFESSOR BAYLEY

101-408A. MODERN CHINA, 1840-1949. (3 Credits; *Prerequisite:* History 208D or 308D; Not given in 1973-74.) Political, intellectual and social change in China from the Opium War to the present, with emphasis on the 19th century background and historical continuity between late traditional and contemporary China. PROFESSOR LAFFEY

101-414D. GREAT BRITAIN: DEVELOPMENT OF THE WELFARE STATE. (6 Credits; *Prerequisite:* History 204D or consent of the instructor.) The course deals with economic conditions in the later 19th century; the growth of working class organization; Conservatism, Liberalism, Socialism, Imperialism; the origins of World War I; the economic and political effects of World War I; the origins and causes of World War II; post-war reconstruction.

PROFESSOR WEINROTH

101-418D. PROBLEMS IN MODERN JAPANESE HISTORY. (6 Credits; *Prerequisite:* History 208D or 318D, or consent of instructor.) Political, social, ideological change, and war and diplomacy from the Imperial Restoration to the present. PROFESSOR BAMBA

101-420D. FORMS OF PROTEST IN TRADITIONAL CHINA. (6 credits; *Prerequisite:* One prior course in Chinese history.) An examination of the ideological and social roots and the forms of expression of protest in traditional China, at both the elite and popular levels. (This course will be given in alternate years). PROFESSOR LAFFEY

101-428D. CONTINUITY AND CHANGE IN TWENTIETH CENTURY CHINA. (6 Credits; *Prerequisite:* History 308D or consent of instructor.) Problems in the radical political and social transformation of China, as confronted and dealt with by twentieth-century revolutionary movements, particularly in the period from the May Fourth Movement to the present.

PROFESSOR BURCHILL

101-429D. MEDICINE AND SOCIETY: THE INTELLECTUAL AND SOCIAL BACKGROUND TO MODERN MEDICINE. (6 Credits; This course is not open to candidates who have previously taken History 425A.) A survey of medicine in the West from antiquity to the present. First term, from antiquity to the 18th century; second term, the 19th and 20th centuries with special reference to the social aspects of medicine.

PROFESSOR BATES (of the Department of the History of Medicine)

101-430D. FRANCE AND THE AFRICANS: A HISTORY OF THEIR RELATIONS FROM 1700 TO THE PRESENT. (6 Credits; *Prerequisite:* An introductory course in either African or French history, and a reading knowledge of French.) An advanced study of the reciprocal nature of contacts between France and Africa south of the Sahara, the course will stress such topics as the slave trade, African resistance to French conquest, colonial rule and its legacy.

PROFESSOR ECHENBERG

101-432A. THE HISTORICAL LITERATURE OF THE MARITIME PROVINCES. (3 Credits; *Prerequisite:* History 202D or equivalent or consent of instructor.) An examination of themes in the history of the Maritime Provinces since 1755, based on historical novels, poetry and travel accounts. This course will examine maritime attitudes and responses to Canada, the American Revolution, settlement, industrialization, confederation and World War I. PROFESSOR MILLER

101-435D. GERMANY IN THE 20TH CENTURY. (6 Credits; *Prerequisite:* History 235D or consent of instructor.) First World War: national and international aspects; another revolution arrested; unsolved problems; Weimar: economic crisis, frustrated energies, and nationalism; rise of Hitler; structure of the National Socialist state; blue-print for World Power; Second World War; attempts to overthrow Hitler; the revolt of conscience; defeat and division; the Cold War and the question of German unity; the two German states in the post-War era.

PROFESSOR HOFFMANN

101-438B. SOCIAL ORGANIZATION IN MODERN CHINA. (3 Credits; *Prerequisite:* History 208D, 308D or 408A; Not given in 1973-74.) Aspects of Chinese social organization (the family, social mobility, urbanization). Emphasis on the traditional forms and their changes in the modern period. PROFESSOR LAFFEY

101-442B. CANADIAN INTELLECTUAL HISTORY. (3 Credits; *Prerequisite:* History 202D or equivalent, or consent of instructor; Not given 1973-74.) An examination of the roots and development of ideas such as nationalism, socialism, corporatism, imperialism, social Darwinism, l'Action Catholique, and social gospel in Canada since 1867.

PROFESSOR LAMONDE (of the French Canadian Studies Centre)

101-443B. COMMUNICATIONS, SOCIETY, AND PUBLIC POLICY IN CANADA. (3 Credits; *Prerequisite:* History 202D; Not given in 1973-74.) This course will be a study of the development of Canada's communication systems and its repercussions on the political, social, and cultural life of Canadians. PROFESSOR LaPIERRE

101-448B. JAPANESE INTELLECTUAL HISTORY. (3 Credits; *Prerequisite:* History 208D or 308D or 318D or consent of instructor; Not given in 1973-74.) Basic schools of Japanese thought, premodern and modern, which helped to shape and reshape Japanese civilization from the Buddhist theory of negation to Shinto nationalism, from Tokugawa Neo-Confucianism to Christian-socialist pacifism. PROFESSOR BAMBA

101-452D. SOURCES OF CONFLICT IN CANADIAN HISTORY. (6 Credits; *Prerequisite:* History 202D; Not given in 1973-74.) A study of the effect of sectionalism, regionalism, separatism and ethnic problems upon Canadian development since 1867. Themes will include Maritimes' dissatisfaction, Western integration, the role and scope of "ethnic groups", religious divisions, the French Canadian presence, regional economic disparities and the impact of native peoples. PROFESSOR LaPIERRE

101-484D. THE COMING OF THE FIRST WORLD WAR. (Honours section of History 334D.) (6 Credits; *Prerequisite:* Any course in Modern European History; Not given in 1973-74.) PROFESSOR WEINROTH

101-485D. CONTEMPORARY EUROPEAN HISTORY. (Honours section of History 315D.) (6 Credits; *Prerequisite:* Any course in European History; Not given in 1973-74.) PROFESSOR WEINROTH

HISTORY 473D, 477D, 479D, 481D, 482D, 483D, 486D, 488D, 489D, 490D, 491D, 494D-498D. Honours Subjects and Seminars.

101-001. HISTORY AND HISTORICAL STUDIES. (Non-credit optional series of lectures). A series of lectures by the members of the Department devoted to the place of history in the social sciences, the methodology of historical studies and the relation of history to the humanities and to the sciences. Lectures will be primarily designed for Upper year Honours students in History — but lectures will be open to interested students. MEMBERS OF THE DEPARTMENT

Honours Seminars

101-473D. SEMINAR: CANADIAN HISTORY: ITS METHODOLOGY AND HISTORIOGRAPHY. (6 Credits; This course is not open to candidates who have previously taken History 412D and/or 472D.) A reading knowledge of French is essential. STAFF

101-477D. SEMINAR: THE JEWS OF THE ITALIAN PENINSULA FROM THE ROMAN REPUBLIC TO THE ITALIAN REPUBLIC OF 1946. (6 Credits; Not given in 1973-74.) PROFESSOR ————

101-479D. SEMINAR: JEWISH HISTORY. (6 Credits; *Prerequisite:* History 207D or its equivalent.) PROFESSOR SWETSCHINSKI

181-481D. SEMINAR: UNITED STATES IN THE COLONIAL ERA. (6 Credits.) PROFESSOR RIGGS

101-482D. SEMINAR: BRITISH RADICALISM AND LEFT-WING MOVEMENTS ON THE EUROPEAN CONTINENT. (6 Credits.) PROFESSOR WEINROTH

101-483D. SEMINAR: THE CITY. (6 Credits.) PROFESSOR DECHENE and PROFESSOR ROY (from the French Canadian Studies Centre)

101-486D. SEMINAR: AFRICA AND THE TWO WORLD WARS. (6 Credits.) PROFESSOR ECHENBERG

101-488D. SEMINAR: MODERN FRENCH INTELLECTUAL HISTORY. (6 Credits; Not given in 1973-74.) PROFESSOR HELLMAN

101-489D. SEMINAR: PROBLEMS IN GERMAN HISTORY IN THE 20th CENTURY. (6 Credits; Not given in 1973-74.) PROFESSOR HOFFMANN

101-494D. SEMINAR: POLITICAL AND SOCIAL IDEAS IN TUDOR AND STUART BRITAIN. (6 Credits.) PROFESSOR MAXWELL

101-495D. SEMINAR: FRANCE DURING THE ANCIEN REGIME. (6 Credits.) PROFESSOR BOULLE

101-496D. SEMINAR: REVOLUTIONARY MOVEMENT IN RUSSIA IN THE NINETEENTH CENTURY. (6 Credits.) PROFESSOR SCHLIEPER

101-497D. SEMINAR: TRADITION AND CHANGE IN CHINA. (6 Credits.) PROFESSORS BURCHILL AND HSIEH FROM THE CENTRE FOR EAST ASIAN STUDIES

101-498D. SEMINAR: PROBLEMS IN MODERN JAPANESE HISTORY. (6 Credits.) PROFESSOR BAMBA

INDUSTRIAL RELATIONS PROGRAM

General Office, Room 505, Samuel Bronfman Bldg., Telephone 392-3022

The Industrial Relations Major is designed for the undergraduate student who wishes to earn a B.A. or B.Com. degree with a concentration of courses chosen from disciplines with an emphasis upon Industrial Relations. The main economic and social forces which affect the employer-employee relationship are examined in a theoretical and practical setting. The student can choose from a wide range of courses in deciding how he or she will constitue the program, being able to concentrate to an extent in the area of industrial relations which interests him or her.

Advisers: Prof. F. Bairstow, Room 515, Samuel Bronfman Bldg, 392-3077
Prof. W. Westley, Room 513, Samuel Bronfman Bldg, 392-3075

All Industrial Relations Majors regardless of option must take the following courses:

Economics	154-200D	
Industrial Relations	279-293D	
	-394B	
	-491D	
	-492D	24 credits

For those selecting the Economics option the following courses are required:

Introductory Sociology	166-312A	
	-307D	18 credits
or		
Behavioural Science I and II (see Faculty of Management Book)		
Plus	154-306D	
	-307D	18 credits

For those selecting the Sociology option the following courses are required:

Introductory Sociology	166-312A	
	-260B	
	-217A	
	-350A	
	-417B	
	-461B	18 credits

In addition to the required courses listed above, 12 credits must be selected by students in both streams from the options listed below:

History 101-202D, 221B, 311A, 363D, 403D
Political Science 160-320A, 321D, 325D, 327D
Economics 154-311D, 316A, 426D
Sociology 166-342A, 343B, 224B, 410A, 420B
Management 272-420A, 421B, 422A, 462D

For those majoring in Industrial Relations in the Commerce Faculty, the following courses will be compulsory:

Economics	154-200D
Industrial Relations	279-293D
	-394B
	-491D
	-492D
Management	280-221A
	-222B
	-271A
	-272B
	-323A

Options:	
Economics	154-306D
	-426D
Sociology	166-312A
	-260B
	-461B

Course Descriptions

279-293D. INTRODUCTION TO INDUSTRIAL RELATIONS. (6 credits.) An introduction to the problems of employer-employee relations, including an analysis of the personnel function, the structure, function and government of the modern trade union movement, labour legislation, and the state function and public interest in industrial relations. PROFESSOR BAIRSTOW

279-394B. COLLECTIVE BARGAINING. (3 Credits.) This course is designed for those students who wish to study principles in collective bargaining in Canada and abroad. It deals with the structure of the bargaining parties and the structure of bargaining itself. It is problem oriented and relies heavily on empirical data and case problems. PROFESSOR WOODS

279-491D. INDUSTRIAL RELATIONS IN PRACTICE. (6 Credits; *Prerequisites:* 1) Introductory Economics, 2) Behavioural Science I and II, offered by the Faculty of Management or Introductory Sociology.) The object of this course is to give the students an opportunity to apply the knowledge that they have gained in their Industrial Relations Program. Students in this course will be encouraged to come to grips with a wide range of problems in industrial relations theory, policy and practice. This is achieved by means of guided reading and small discussion groups, mock collective bargaining sessions, contact with practitioners in the field and problem-oriented research assignments. (Compulsory for Final year Industrial Relations Majors. Others by permission of the instructor.) PROFESSOR GOLDENBERG

279-492D. PUBLIC POLICY IN INDUSTRIAL RELATIONS. (6 credits.) Collective bargaining and public policy towards industrial relations. Emphasis is placed on recent public investigations into labour relations in the federal and provincial jurisdictions; international comparisons are included. PROFESSOR WOODS

ITALIAN LANGUAGE AND LITERATURE (132)

Samuel Bronfman Building, Room 637; *General Telephone Number:* 392-4567

Major in Italian

30 credits to be chosen from the following: Italian 230D, 240D, 251A, 252B, 301A, 302B, 351A, 352B, 401A, 402B, 451A, 452B, 461A, 462B, 464B;

12 credits: 2 compulsory courses, Italian 360D and 470D;

12 other credits in Arts or Social Sciences subjects chosen in consultation with the Department.

Prerequisites: see under individual courses.

Adviser: Professor P. D. Stewart, Samuel Bronfman Building, Room 637-A, 392-4567.

Honours in Italian

Admission to the Honours program in Italian requires departmental approval. Students wishing to register in the program should consult with the Department as early as possible.

Students may begin Honours in Italian in the Second year, instead of the First year, if in the opinion of the Department they are found qualified to do so.

Courses required: 30 credits to be chosen from the following: Italian 230D, 240D, 251A, 252B, 301A, 302B, 351A, 352B, 401A, 402B, 451A, 452B, 461A, 462B, 464B;

12 credits: 2 compulsory courses, Italian 360D and 470D;

6 credits: 1 compulsory tutorial, Italian 490D. This will appear as a sixth course on the student's final year record, i.e. it will be a 16th course in the 15 course B.A. program.

A minimum mark of 65% is required in each of the above listed courses.

Prerequisites: see under individual courses.

Adviser: Professor P. D. Stewart, Samuel Bronfman Building, Room 637-A, 392-4567.

Joint Honours

Students may combine Honours in Italian with Honours in any one of the following subjects: English, French, German, Latin, Linguistics, Philosophy, Russian, Spanish. Admission to Joint Honours requires departmental approval. Students wishing to register in the program should consult with the Department as early as possible.

Students may register for Joint Honours in the Second year, instead of the First year, if in the opinion of the Departments they are found qualified to do so.

Italian courses required: 36 credits to be chosen from the following: 230D, 240D, 251A, 252B, 301A, 302B, 351A, 352B, 360D, 401A, 402B, 451A, 452B, 461A, 462B, 464B, 470D.

A minimum mark of 65% is required in each of the above listed courses.

Prerequisites: see under individual courses.

Adviser: Professor P. D. Stewart, Samuel Bronfman Building, Room 637-A, 392-4567.

Course Descriptions

Two sets of courses are offered by the Department:

a) Italian 132-200D, 205D, 210D, 215D, 230D, 240D, 251A, 252B, 301A, 302B, 351A, 352B, 360D, 401A, 402B, 451A, 452B, 461A, 462B, 464B, 470D, 490D: courses intended for students wishing to learn, or improve their knowledge of the language, and to study Italian literature in the original;

b) Italian 132-225D, 325A and 326B: courses on Italian literature given in English; Italian authors will be read in the original or in translation as preferred by students; knowledge of the Italian language is not required.

Students taking Italian in order to satisfy the Language Requirement of the College Equivalent Program can offer themselves for examination only in courses listed in group a).

132-200D. ITALIAN LANGUAGE. INTENSIVE. (12 credits; *Not given in 1973-74.*) For students who have had no opportunity to acquire any knowledge of Italian. Intensive course designed to bring students to the same level of knowledge of the language as those who have taken CEGEP Intermediate Italian. STAFF

132-205D. ITALIAN LANGUAGE FOR BEGINNERS. (6 credits; 3 hours and laboratory; *Texts:* D'Andrea & Stewart, *Il manuale italiano; Mondadori's Pocket Dictionary;* Buzzati, *Un caso clinico:* Appelton-Century-Crofts.) Grammar, reading, dictation. Intensive practice in speech patterns and written structures. Conversation and composition. Visual material and selected readings will be used in describing the making of contemporary Italy. Opportunity for extra practice in Italian conversation is provided by the Department. STAFF

132-210D. ITALIAN LANGUAGE AND CIVILIZATION. (9 credits; 5 hours; *Prerequisites*: Permission of the Department; *Texts*: D'Andrea & Stewart, *Il manuale italiano*; D'Andrea & Stewart, *Antologia italiana*; Pacifici, *Italia: vita e cultura*: Random House; Olken, *Racconti del Novecento*: Appleton-Century-Crofts; Buzzati, *Un caso clinico*: Appleton-Century-Crofts.) Grammar, reading, conversation and composition. An outline of Italian civilization. This course is intended to enable students who have no formal grounding in the Italian language, to obtain in one year the same level of competence as students who have taken CEGEP Intermediate Italian. MISS SACCONAGHI

132-215D. INTRODUCTION TO ITALIAN LITERATURE. GRAMMAR. CONVERSATION, AND FREE COMPOSITION. (6 credits; *Prerequisite*: Italian 205D or the equivalent; *Texts*: D'Andrea & Stewart, *Il manuale italiano*; D'Andrea & Stewart, *Antologia italiana; Dizionario Garzanti della lingua italiana;* Sansone, *Storia della letteratura italiana:* Principato; Lussu, *Un anno sull'altipiano:* Einaudi; Fenoglio, *Una questione privata:* Garzanti.) A survey of Italian literature with special emphasis on some aspects of the Italian Novel. Reading of selected works and group discussion. STAFF

132-225D. MAIN TRENDS AND MAJOR WRITERS OF ITALIAN LITERATURE. (6 credits; 1 lecture hour and 2 conference hours; *Not given in 1973-74.*) Lectures are given in English. Readings in Italian or in translation, as preferred by students. This course is intended to give students, whether they know Italian or not, an insight into the main problems of the Italian literary tradition. PROFESSOR D'ANDREA & STAFF

132-230D. SURVEY OF ITALIAN LITERATURE. (6 credits; *Prerequisite:* CEGEP Elementary Italian, or the equivalent; *Not given in 1973-74.*) Readings from representative works of Italian literature; special emphasis on the nineteenth and twentieth centuries. STAFF

132-240D. MANZONI AND THE ITALIAN LITERATURE OF THE "RISORGIMENTO". (6 credits; *Prerequisite:* CEGEP Intermediate Italian, or permission of the Department.) The Italian Romantic movement and its social and political background. The intellectual life of Alessandro Manzoni as reflected in his novel, *I promessi sposi.* PROFESSOR PICONE

132-251A. THE "COMMEDIA DELL'ARTE". (3 credits; *Prerequisite:* CEGEP Intermediate Italian, or permission of the Department; *Texts: Dizionario Garzanti della lingua italiana;* D'Amico, *Storia del teatro drammatico:* Garzanti; D'Andrea & Stewart, *Antologia italiana.*) Playhouses, actors, stage techniques, masks and scenarios of the "Commedia dell'arte." PROFESSOR STEWART

132-252B. ITALIAN DRAMA FROM GOLDONI TO PIRANDELLO. (3 credits; *Prerequisite:* Italian 251A, or permission of the Department; *Texts: Dizionario Garzanti della lingua italiana;* D'Amico, *Storia del teatro drammatico:* Garzanti; Goldoni, *La Bottega del Caffè, Il Bugiardo, La Locandiera, I Rusteghi, Il Ventaglio:* Signorelli; Pirandello, *Sei Personaggi in cerca d'autore, Enrico IV:* Mondadori.) A study of drama in Italy from the eighteenth to the twentieth century, with emphasis on Goldoni and Pirandello. PROFESSOR STEWART

132-301A. LEOPARDI AND THE ITALIAN POETRY OF THE 19th CENTURY. (3 credits; *Prerequisite:* Italian 240D, 251A or 252B, or permission of the Department.) Readings from Leopardi's *Canti* and from representative works of other nineteenth-century poets. PROFESSOR PICONE

132-302B. CONTEMPORARY ITALIAN PROSE. (3 credits; *Prerequisite:* Italian 240D, 251A or 252B, or permission of the Department.) Italian novelists, playwrights, diarists, and essayists from 1945 to the present in the context of the Italian post-war society. PROFESSOR PICONE

132-325A. DANTE AND THE MIDDLE AGES. (3 credits; *Prerequisite:* Italian 225D, or permission of the Department; *Not given in 1973-74*; Lectures are given in English. Readings in Italian or in translation, as preferred by students. Students are not required to take language courses as prerequisites.) Special emphasis will be placed on the history of ideas and on the cultural contacts of Italy with England and France during the Middle Ages. PROFESSOR D'ANDREA & STAFF

132-326B. THE RENAISSANCE: PETRARCH, BOCCACCIO, AND MACHIAVELLI. (3 credits; *Prerequisite:* Italian 225D, or permission of the Department; *Not given in 1973-74*; Lectures are given in English. Readings in Italian or in translation, as preferred by students. Students are not required to take language courses as prerequisites.) Special emphasis will be placed on the history of ideas and on the cultural contacts of Italy with England and France during the Renaissance. PROFESSOR D'ANDREA & STAFF

132-351A. ARIOSTO'S ORLANDO FURIOSO. (3 credits; *Prerequisite:* Italian 240D, 251A or 252B, or permission of the Department; *Not given in 1973-74.*) The chivalresque genre and the courtly life of the Renaissance. Readings from Pulci's *Morgante,* Boiardo's *Orlando innamorato,* Castiglione's *Cortegiano,* and from the *Orlando Furioso.* PROFESSOR STEWART

132-352B. FROM THE RENAISSANCE TO THE BAROQUE AGE: TASSO; THE ITALIAN PROSE FROM THE LATE 16th TO THE EARLY 18th CENTURY. (3 credits; *Prerequisite:* Italian 351A, or permission of the Department; *Not given in 1973-74.*) The crisis of the Italian Renaissance and Tasso's *Gerusalemme Liberata.* Literary criticism; erudition; scientific and philosophical prose from Galilei to Vico. PROFESSOR STEWART

132-360D. SEMINAR ON ITALIAN STYLISTICS AND COMPOSITION. (6 credits; 2 lecture hours per week and report on special assignment; *Prerequisite:* Permission of the Department.) Intensive practice in stylistics and composition, with special emphasis on literary style. Seminar discussions or exercises and papers submitted by the students. Oral dissertations on various subjects, mainly of a literary character, prepared and delivered by students. STAFF

132-401A. VERGA AND THE "VERISMO". (3 credits; *Prerequisite:* Italian 240D, 251A or 252B, or permission of the Department; *Not given in 1973-74.*) The realistic movement in Italian narrative prose (end of the 19th and beginning of the 20th century), with special emphasis on the novels and short stories of its main representative, Giovanni Verga. PROFESSOR PICONE

132-402B. MODERN ITALIAN LITERATURE. (3 credits; *Prerequisite:* Italian 401A, or permission of the Department; *Not given in 1973-74.*) A study of representative works of major Italian twentieth-century authors. PROFESSOR PICONE

132-451A. BOCCACCIO AND THE ITALIAN NOVELLA. (3 credits; *Prerequisite:* Italian 240D, 251A or 252B, or permission of the Department.) A study of Boccaccio's *Decameron* and of the Italian narrative prose up to the sixteenth century PROFESSOR STEWART

132-452B. THE ITALIAN DRAMA OF THE RENAISSANCE. (3 credits; *Prerequisite:* Italian 451A, or permission of the Department.) The role of Humanism in the revival of Drama. Secular and religious festivals. The audience and the stage. Representative works of the major playwrights. PROFESSOR STEWART

132-461A. DANTE: THE DIVINE COMEDY. (3 Credits; *Prerequisites:* Italian 240D, 251A or 252B, or the equivalent, and permission of the Department.) The structure and intellectual background of the *Divine Comedy:* a reading and interpretation of the poem; a discussion of the main trends in contemporary Dante scholarship. PROFESSOR D'ANDREA

132-462B. PETRARCH AND PETRARCHISM. (3 credits; *Prerequisites:* Italian 240D, 251A or 252B, or the equivalent, and permission of the Department; *Not given in 1973-74.*) Petrarch's life, his temperament, his works; a reading and interpretation of his lyrical poetry; an account of his influence as a lyric poet in Italy and abroad. PROFESSOR D'ANDREA

132-464B. MACHIAVELLI: THE PRINCE. (3 credits; *Prerequisites:* Italian 240D, 251A or 252B, or the equivalent, and permission of the Department.) An analysis of the text of *The Prince.* Selected readings from Machiavelli's other works. PROFESSOR D'ANDREA

132-470D. SEMINAR ON ITALIAN LITERATURE. (6 credits; 2 lecture hours per week and report on special assignment; *Prerequisite:* permission of the Department.) Students will be assigned a reading program designed to integrate their knowledge of Italian literature, and will be required to take part in weekly Seminar discussions with Staff members PROFESSOR D'ANDREA & STAFF

132-490D. TUTORIAL. (6 credits; *Prerequisite:* For Honours students only.) Upon entry into the Honours program in Italian, every student will be entrusted to a Tutor. The Tutor will meet the student regularly during the term to discuss special assignments (readings, essays, etc.) STAFF

JEWISH STUDIES PROGRAM (135)

3511 Peel Street, Room 103, telephone 392-5969.

The Jewish Studies Program of McGill University, established in 1968, offers an interdisciplinary approach to Jewish learning at the undergraduate level. The aims of the Program include:

— Providing a selection of courses which will enable the student not majoring in Jewish Studies to broaden his knowledge of Jewish history and culture;

— Providing specialized courses in the various disciplines that comprise Jewish Studies for the student who has specific academic interests;

— Providing comprehensive undergraduate majors and honours programs, culminating in advanced seminars and tutorials for students contemplating careers in the various and ramified fields of Judaica. The Honours program in Jewish Studies will give the student the necessary linguistic, textual and bibliographical knowledge to enable him to pursue graduate work in Jewish Studies.

The Program consists of courses in Hebrew and Yiddish language and literature, complemented by courses in Jewish history and philosophy offered in their respective departments. Offerings currently include complete language sequences in both Hebrew and Yiddish, as well as advanced courses in Hebrew Literature — Rabbinic, Mediaeval and Modern — and Yiddish literature. Some of the advanced courses involve textual studies requiring a knowledge of the original languages; others are intended for students unacquainted with the languages. Many of the courses in the Jewish Studies Program are cross-listed with those offered by other departments viz. History, Philosophy, Comparative Literature; these courses are credited towards the Major or Honours program.

Although the Jewish Studies Program at McGill is multifaceted, treating many of the most significant areas of Judaica, our major focus, we hope, will be on the modern period, emerging from an intensive interdisciplinary study of 19th and 20th Century Hebrew and Yiddish literature and intellectual and social history. Consonant with this orientation, the establishment of an M.A. program in comparative Hebrew and Yiddish literature is projected in the near future.

Major in Jewish Studies

A Major in Jewish Studies is composed of nine Jewish Studies courses, including at least one Jewish language completed after three years of instruction. In addition, at least two of the nine courses should be taken within the Program's offerings in

Philosophy, History, and Religious Studies. A student who meets the third year language requirement in one Jewish language may submit the first year of the second Jewish Language towards the nine course total. For further information, contact Professor Harvey at 392-5155.

Honours in Jewish Studies

A B.A. (Honours) in Jewish Studies is composed of eleven courses within the Program's offerings. The student shall take three courses in Hebrew (given in Hebrew) at at least the third year of instruction. In addition, the student will take at least two courses in Jewish history (History 207D is required), at least one course in Jewish philosophy, and also *at least* one tutorial or seminar course in Hebrew, Yiddish, Jewish History or Jewish Philosophy. A student who meets the third year language requirement in Hebrew may submit the first year of Yiddish towards the eleven course total. In addition to the requirements for the Honours B.A. degree, Honours in Jewish Studies requires (a) a grade of at least B in every Jewish Studies course and (b) a senior thesis in some phase of Jewish Studies prepared under the direction of a staff member. For further information, contact Professor Harvey at 392-5155.

Course Descriptions

Courses listed below fall under two categories — those which are primarily devoted to Jewish material, and those which are secondarily so concerned.

The middle digit of a Jewish Studies course number designates the cultural domain of the course: Middle digits 0, 1 designate a Hebrew course in English; Middle digits 2, 3, 4 designate a Hebrew course in Hebrew; Middle digit 5 designates a miscellaneous Jewish Studies course given in English; Middle digits 6, 7 designate a Yiddish course in English; and Middle digits 8, 9 designate a Yiddish course in Yiddish.

HEBREW LANGUAGE AND LITERATURE SEQUENCE

135-201D. SURVEY OF HEBREW LITERATURE OF THE BIBLICAL PERIOD. (6 credits. *Not given in 1973-74.*)

135-220D. INTRODUCTORY HEBREW. (6 credits.) STAFF

135-301D. LITERATURE OF THE SECOND COMMONWEALTH AND TALMUDIC PERIODS. (6 credits; *Not given in 1973-74.)* A study of classic post-Biblical texts. First term: Midrash, Mishnah and Talmud. Second term: Historical and sectarian works; Apocrypha, Philo, Josephus, Dead Sea Scrolls. Lectures and readings in English.

135-309D. THE IDEA OF THE JEWISH PEOPLE. (6 credits; *Prerequisite:* History 207D or permission of instructor. *Not given in 1973-74.)* The history and significance of "peoplehood" in Judaism from the Biblical Period until the French Revolution. The foci of the course will be (a) The meaning of the concept in Jewish thought and (b) The political structures that evolved from it.

135-311D. HISTORY OF JEWISH MESSIANISM AND MESSIANIC THOUGHT FROM BIBLICAL TIMES UNTIL SABBETAI ZEVI. (6 credits.) First term: Messianic thought in the Bible, apocalyptic literature, Dead Sea Scrolls, and Rabbinic literature. Second term: Messianic thought in Mediaeval Jewish philosophy and mysticism. Messianic movements in the Middle Ages. Sabbatianism. Lectures and readings are in English. *Prerequisite:* University status or permission of instructor. PROFESSOR KAPLAN

135-320D. INTERMEDIATE HEBREW. (6 credits.) STAFF

135-340D. ADVANCED HEBREW. (6 credits.) MR. LEVI

135-343D. INTRODUCTION TO BIBLICAL TEXTS. (6 credits. *Prerequisite:* Hebrew 320D or its equivalent. *Not given in 1973-74.)* Detailed number of Biblical texts will be carefully examined and analysed. In Hebrew.

135-345D. INTRODUCTION TO RABBINIC LITERATURE. (6 credits.) An introduction to the study of rabbinic texts (Tannaitic and Amoraic) in the original. Both conceptual analysis and critical method will be stressed. This course is given in Hebrew and may be taken as an alternative to Hebrew 340D. PROFESSOR KAPLAN

135-403D. IDEAS AND MOTIFS OF CLASSICAL JUDAISM. (6 credits; *Prerequisite:* Hebrew 301D or Hebrew 345D or permission of instructor. *Not given in 1973-74.)* First term: Basic motifs and values of rabbinic thought; God, man, and peoplehood. Second term: the basis, function and scope of rabbinic ethics; law, justice, and community. Lectures and readings in English. PROFESSOR KAPLAN

135-420D. MODERN HEBREW LITERATURE. (6 credits.) *Prerequisite:* Hebrew 340D or permission of instructor. MR. LEVI

135-421D. HEBREW LITERATURE IN THE ISLAMIC WORLD. (6 credits. *Prerequisite:* Hebrew 340D or permission of instructor; *Not given in 1973-74.)* Through the reading of the original Hebrew texts, the student will be introduced to the civilization of the Jews in the Islamic world and the cultural relationships between Jews and Arabs in the period 500-1500 A.D. TBA

135-444D. TUTORIAL IN HEBREW LITERATURE. (6 credits. *Prerequisite:* Fluency in Hebrew reading is required.) Topic for 1973-74: Mishneh-Torah of Maimonides. PROFESSOR KAPLAN

135-445D. TUTORIAL IN HEBREW LITERATURE. (6 credits.) PROFESSOR KAPLAN

135-446D. TUTORIAL IN HEBREW LITERATURE. (6 credits.) PROFESSOR KAPLAN

135-447D. TUTORIAL IN HEBREW LITERATURE. (6 credits.) Topic for 1973-74: To be announced. MR. LEVI

135-448D. TUTORIAL IN HEBREW LITERATURE. (6 credits.) MR. LEVI

135-449D. TUTORIAL IN HEBREW LITERATURE. (6 credits.) MR. LEVI

YIDDISH LANGUAGE AND LITERATURE-SEQUENCE

135-280D. YIDDISH LANGUAGE. (6 credits.) (1 laboratory period.) Concentrated introduction to spoken and written Yiddish. Selected readings in Yiddish literature. MR. TENCER

135-360D. MODERN YIDDISH PROSE. (6 credits.) Treats the development of Yiddish prose and poetry from 1864 to the present. Lectures and readings in English. PROFESSOR WISSE

135-380D. INTERMEDIATE YIDDISH. (6 credits.) This course is designed to develop the students language skills upon completion of the text *College Yiddish* (Vol. 1). Selected literary texts will be studied and themes will be set for composition in Yiddish to improve the students grasp of proper usage and style .*Prerequisite:* Yiddish 280D or permission of instructor. PROFESSOR ORENSTEIN

135-381D. AMERICAN YIDDISH LITERATURE. (6 credits.) An intensive study of selected American Yiddish prose and poetry, 1910-1930, with special emphasis on Mani Leib, Zishe Landau, Lamed Shapiro, and Moshe Leib Halpern. *Prerequisite:* Elementary Yiddish (280D) or permission of instructor. PROFESSOR WISSE

135-495D. TUTORIAL IN YIDDISH LITERATURE. (6 credits.) Topic for 1973-74: The Classics of Yiddish Literature: A study of the prose of Mendele, Peretz, and Sholem Aleichem and their contemporaries. PROFESSOR ORENSTEIN

135-496D. TUTORIAL IN YIDDISH LITERATURE. (6 credits.) Topic for 1973-74: The course will deal with Yiddish Literature in Poland between the two World Wars, particularly with *Yung Vilna.* PROFESSOR WISSE

JEWISH STUDIES SEQUENCE

135-351B. STUDIES IN MODERN JEWISH FICTION. (3 credits.) Emphasis on North American authors but some others will be included. Attention will be given to historical background with part of the emphasis on the social and political position of the Jews since early 19th Century. Authors: A. M. Klein, I. B. Singer, and Elie Wiesel among others PROFESSOR LINDEMAN

135-352A. INTER-DISCIPLINARY LECTURES IN JEWISH STUDIES. (3 credits.) *Topic for Fall 1973: The Holocaust, the destruction of European Jewry.* Lectures will be given by members of the Jewish Studies Program in their several disciplines. Questions will be raised concerning the historical and ideological nature of intolerance, racism, genocide and nationalistic and theological anti-semitism. Poems and novels concerning the Holocaust will be discussed. Students are free to concentrate in the area of their choice. In English. STAFF

135-353B. INTER-DISCIPLINARY LECTURES IN JEWISH STUDES. (3 credits.) *Topic for Spring 1974: Zionism.* Lectures will be given by members of the Jewish Studies Program in their several disciplines. The Zionist idea will be analyzed in its historical, political, literary, religious, mystical, and philosophical aspects. Students are free to concentrate in the area of their choice. In English. STAFF

135-356D. THE JEWISH LABOUR MOVEMENT. (6 credits.) This course treats the development of the Jewish Labour Movement both in Eastern Europe and North America from the last quarter of the 19th Century to the Bolshevik Revolution. Special emphasis is given to the problem of nationalism and cosmopolitanism within the Jewish Labour Movement and to the movement's influence on secular Jewish culture. PROFESSOR ORENSTEIN

ADDITIONAL PROGRAM COURSES

101-207D. A HISTORY OF THE JEWS FROM LATE CLASSICAL TIMES TO THE PRESENT. (6 credits.) A general introductory survey of the history of the Jewish people from late classical times to the present in the context of general world history. Emphasis will be placed on general trends and developments, and special attention will be paid to areas of major Jewish settlements. The first term will deal with the period up to 1492, while the second term will

cover the period from 1492 to the present. *Prerequisite:* History 105D possibly concurrently is recommended. PROFESSOR SWETSCHINSKI

101-317D. JEWISH HISTORY FROM THE REFORMATION TO THE FRENCH REVOLUTION. (6 credits.) An examination of the main events, trends and issues in the context of the general background. The first term will be devoted to the Sephardic experience, the second to the Ashkenazi. *Prerequisite:* History 207D or one course in Modern European History is recommended. PROFESSOR SWETSCHINSKI

101-479D. JEWISH HISTORY. (6 credits. *Prerequisite:* History 207D or its equivalent.) TBA

107-345D. SURVEY OF JEWISH PHILOSOPHY. (6 credits.) Discussions of major works of Jewish Philosophers with focus on the nature of man, prophecy, love. First term: Philo of Alexandria to the Maimonidean Revolution. Second term: Spinoza to Existentialism. *Prerequisite:* One course in Philosophy or consent of instructor. PROFESSOR HARVEY

107-452A. THEMES IN THE HISTORY OF JEWISH PHILOSOPHY. (3 credits.) *Topic for 1973-74: Theories of Philosophy and philology and the development of racism. Prerequisite:* Consent of instructor. PROFESSOR POPKIN

107-398A/399B. PHILOSOPHY TUTORIAL. (3 credits.) Students interested in reading Philosophical texts in Hebrew may sign up for a Philosophy tutorial. *Prerequisite:* Permission of instructor. PROFESSOR HARVEY

260-300A. THE POST-BIBLICAL JEWISH TRADITION. (3 credits.) Topic for Fall 1973: *The Origins of Rabbinic Judaism.* A survey of Jewish history and thought from Ezra to the Tannaim; oral tradition; Torah interpretation in the Mishna and Midrashim. PROFESSOR RUNNALLS

260-301B. THE POST-BIBLICAL JEWISH TRADITION. (3 credits.) Topic for Spring 1974: *The Religion and Literature of Sectarian groups.* Apocalyptic thought; Wisdom; Dead Sea Scrolls; Josephus. PROFESSOR RUNNALLS

COURSES OF RELATED INTEREST

260-390D. HEBREW LANGUAGE. (6 credits.) PROFESSOR RUNNALLS

260-490D. ADVANCED BIBLICAL HEBREW. (6 credits.) PROFESSOR CULLY

NOTE: The two above courses are designed to provide a reading knowledge of Biblical Hebrew. They may be taken only with the instructor's permission.

260-200D. RELIGIOUS TRADITION OF THE ANCIENT NEAR EAST. (6 credits.) The religion of Ancient Israel in the setting of the Ancient Near East: a brief consideration of religion in general, its origin, nature and study; other religions of the Ancient Near East, e.g. those of Egypt and Mesopotamia: the religion of Ancient Israel. PROFESSOR RUNNALLS

PROGRAM UNDER DEVELOPMENT

A program in education is now being developed jointly by the Faculty of Education and the Jewish Studies Program. For further information contact either Professor E. Orenstein at the Jewish Studies Program or the Associate Dean's Office, Faculty of Education.

LINGUISTICS (104)

Samuel Bronfman Building, Room 584. Tel. 392-4433

General Information

The field of Linguistics deals with the study of language as a phenomenon of human behaviour and the following course list will indicate the several areas covered. The Department of Linguistics does not normally undertake the teaching of any specific language, especially where provision for such instruction is made elsewhere in the University. Many linguistics courses, however, serve as a useful basis for or adjunct to language learning as well as to other fields of study.

In its undergraduate section the Department of Linguistics offers a Major, Honours and Joint Honours program to students wishing various degrees of concentration in Linguistics.

Major Program

The Major program in Linguistics includes:

1) 36 Credits in Linguistics. The following courses are required: 104-200A and 201B or 200B and 201A, 350A, 351B, 360A, 361B, 400A, 480A. The other courses are selected in consultation with the Department;

2) 18 Credits taken in one or two of the following disciplines: Anthropology, Language (classical or modern), Philosophy, Psychology, Mathematics, Sociology. One of the three courses may be taken in Linguistics.

For information on the Major in Classics and Linguistics, see page 74, Department of Classics.

Inquiries may be addressed to the departmental office or the advisers for undergraduate studies.

Honours Program

The Honours program in Linguistics includes:

1) 42 Credits in Linguistics, to include 104-200A and 201B or 200B and 201A, 350A, 351B, 360A, 361B, 400A, 401B, 480A, 481B, 482D and two other half courses to be selected in consultation with the Department;
2) Four full language courses, beyond the introductory level, in two languages: a major language (18 Credits) and a minor language (6 Credits). Students may choose either a classical language and a modern language, or two modern languages one of which must be French, German or Russian;

   During the final year, students must acquaint themselves through personal readings and/or tape-recorded material with a non-Indo-European language. This work forms part of the requirements for course 482D.
3) 24 Credits in two subjects other than language and linguistics. Anthropology, English, Mathematics, Philosophy, Psychology, and Sociology are recommended, but other subjects may also be included with the permission of the Department.

An average B grade (minimum 65% - G.P.A. of 2.8) is required to maintain Honours standing. Inquiries may be addressed to the departmental office or to the advisers for undergraduate studies.

Joint Honours Programs

Joint Honours programs, combining Linguistics with any one of the following subjects, are available: Anthropology, Classics, English, French, German, Ancient Greek, Italian, Latin, Philosophy, Russian, and Spanish.

Linguistics courses required for Joint Honours in Anthropology and Linguistics: 200A and 201B or 200B and 201A, 230A, 241B, 350A, 351B, 360A, 361B, 480A, 481B and another 400 level half course.

Linguistics courses required for Joint Honours combining Linguistics and a language: 200A and 201B or 201A and 200B, 350A, 351B, 360A, 361B, 400A, 401B, 480A, 481B, and two other semester courses to be determined in consultation with the Department.

For courses required in other subjects combined with Linguistics, please consult the other Department.

An average B grade (minimum 65% - G.P.A. of 2.8) is required to maintain Honours standing in Linguistics. Inquiries may be addressed to the departmental office or to the advisers for undergraduate studies.

Course Descriptions

NOTE: One A and one B section from Linguistics 200 or 201 is the normal prerequisite to all upper level Linguistics courses.

104-200A,B/104-201A,B. INTRODUCTION TO THE STUDY OF LANGUAGE. (3 credits each semester.) The first section of the course will discuss some of the fundamental questions in explaining and describing language. A core of obligatory topics deals with sound, syntax, semantics and language change. In addition to these, the student will make a choice from an extended list of related issues. The second section covers additional areas including linguistics as science, non-verbal communication, language acquisition and loss, bilingualism, language as a formal system, cross-cultural linguistics, language in the arts, the empiricism/rationalism dispute as seen by linguists, and others. There will be only a few introductory lectures following which the student will work independently and in private and group tutorials. The aim of the course is to acquaint beginners in Linguistics with the wide range of contemporary views on language.

104-230A. ANTHROPOLOGICAL LINGUISTICS. (3 credits.) This course will introduce students to language and its place in culture. Major topics will include the following: human language as a unique system, the development of language in mankind and individuals, similarity and diversity among languages, the interdependence between language and culture, the ethnography of speaking, linguistic change. PROFESSOR WEBER

104-241B. SOCIOLINGUISTICS. (3 credits; *Prerequisite:* Linguistics 200A, 201A or 230A.) This course will focus on linguistic correlates, determinants, and consequences of social behaviour. Major topics will include linguistic variation, the description of speech events, the determinants of stylistic and linguistic choice, types of multilingual communities and language planning. PROFESSOR WEBER

104-321B. LINGUISTICS APPLIED TO LANGUAGE LEARNING. (3 credits.) A critical study of the application of linguistic theory and description to first and second language learning. The relationship between spoken and written language. PROFESSOR WEBER

104-350A. INTRODUCTION TO GENERAL PHONETICS. (3 credits; *Prerequisite:* Linguistics 200A or 201A.) Intensive training in the identification and production of speech sounds, followed by an acoustical analysis of speech and a study of the process of auditory perception. Practical sessions in the Phonetics Research Laboratory form part of the course. PROFESSOR RIGAULT

104-351B. PHONOLOGY. (3 credits; *Prerequisite:* Linguistics 350A.) Advanced analytical procedures applied to specific languages. PROFESSOR RIGAULT

104-360A. THEORY OF MORPHOLOGY AND SYNTAX. (3 credits.) Proficiency in the techniques of generative grammatical research developed through application of theory to problems of limited scope. PROFESSOR LIGHTFOOT

104-361B. SEMINAR IN MORPHOLOGY AND SYNTAX. (3 credits; *Prerequisite:* Linguistics 360A.) Detailed research into some linguistic problem, with regard to either language-particular or universal significance, or both. PROFESSOR LIGHTFOOT

104-400A. THEORY AND METHODS OF HISTORICAL LINGUISTICS. (3 credits.) Theory of linguistic change; philological techniques (contrasted with field methods); exemplification from familiar languages.

104-401B. SEMINAR IN HISTORICAL LINGUISTICS. (3 credits; *Prerequisite:* Linguistics 400A.) Problems in the history of selected languages studied for their importance both to particular and to universal grammar. PROFESSOR LIGHTFOOT

104-410A. STRUCTURE OF A SPECIFIC LANGUAGE. (1973: The Structure of Cree) (3 credits.) A detailed study of the structure of a specific language. The topic for 1973 is Cree, a northern Algonquian language typical of the central group. Descriptive studies will be supplemented with reading from selected Cree texts and use of recorded materials. PROFESSOR ELLIS

104-425A. LANGUAGE AND THOUGHT. (Same as PSYCHOLOGY 425A. For description, see under PSYCHOLOGY.)

104-430A/104-431B. AREAL LINGUISTICS. (3 Credits; *Prerequisite:* Linguistics 200A or 201A.) Intensive study of a selected language block relating to a specific geographical, political or cultural area. While the orientation is necessarily linguistic, problems examined may be drawn from the total range of contact between language on the one hand and human culture and society on the other.

104-460A. PROSEMINAR IN A SELECTED FIELD. (3 credits.) Intensive study of a selected field or topic chosen to balance the requirements of the Honours program or provide for coverage of developing or less familiar areas of linguistic inquiry.

104-461B. ADVANCED SYNTAX. (3 credits; *Prerequisite:* Linguistics 361B.) Advanced work in transformational syntax. Examination of different kinds of analyses advocated by proponents of semantically based grammars and proponents of autonomous syntax. Extensive discussion of the separability of syntax and semantics, influence of logicians on syntacticians, status of the notion of a deep structure which is syntactically determinable. PROFESSOR LIGHTFOOT

104-480A. SEMINAR IN LINGUISTIC THEORY. (3 credits.) Discussion of advanced topics chosen for their importance to linguistic theory. Competing views will be compared.

104-481B. FIELD METHODS OF LINGUISTICS. (3 credits.) Elicitation, recording and analysis of linguistic data under simulated field conditions; consideration of typical problems confronting the field analyst. PROFESSOR ELLIS

104-482D. FIELD OR RESEARCH PROJECT. (6 credits.)

MATHEMATICS (189)

Burnside Hall, Room 1005, Telephone 392-5369

General information, Courses and Course descriptions appear on page 204. The following programs of study are designed to provide students with every opportunity to enter a wide variety of fields.

Major in Mathematics

Programs of study for students entering U1 in 1973-74.

The compulsory courses are 189-201A,B, 189-202A,B, 189-221A,B, 189-222A,B, 189-245A,B.

Advisers will approve a program of which 54 credits will be in Mathematics (excluding 201A, B, 202A, B, 221A, B) or allied courses including at least 36 credits from the following: 189-217A, 189-218B, 189-242A, 189-243B, 189-246A, B, 189-314A, B, 189-315A, B, 189-316B, 189-317A, 189-318A, 189-319B, 189-323A, B, 189-324A, B, 189-327B, 189-328B, 189-333A, 189-346B, 189-348A, 189-349B, 189-360B, 189-369D, 189-410D, 189-416A, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B.

Guidelines for Selection of Courses in the Major Program

a. Students are advised to include the following courses in their program: 189-246A,B, 189-314A,B, 189-315A,B, 189-317A, 189-323A,B, 189-324A,B, 308-200A,B.

b. Students planning to pursue graduate studies are advised to include 189-242A, 189-243B and 189-333A in their program, and to consider substituting one or more honours courses for the corresponding courses in the Major program.

c. Students considering a career in teaching are advised to include in their program the following courses: 189-217A, 189-218B, 189-242A, 189-318A, 189-328B, 189-346B, 189-349B.

d. Students interested in applied mathematics or statistics are advised to include in their program the following courses: 189-217A, 189-218B, 189-316B, 189-319B. Depending on their interests, they should in addition take some or all of the following courses: 189-327B, 189-328B, 189-410D, 189-416A, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B, 189-486B.

e. Students interested in computer science are advised to register in the following courses: 189-318A, 189-327B, 189-328B, 189-417A, 308-210A,B, 308-300A,B; they should choose additional courses from 189-319B, 189-410D, 189-416A, 189-423A, 189-424B, 189-425A, 189-447B, 308-640D*, 308-610A*, 308-699D*. *These courses require special permission from the instructors.

f. Students interested in careers in actuarial work, in industry or government are advised to select courses from the following list: 189-319B, 189-327B, 189-328B, 189-369D, 189-410D, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B, 189-416A, 189-486B, 308-210A, B.

The student's attention is called to the fact that a B.Com. degree with a Major in Mathematics is available from the Faculty of Management. In addition the Faculty of Music offers a degree of B.Mus. (Honours in Theory with Mathematics Option.)

Honours Program

The minimum requirement for entry into the Honours Program is that the student has completed with high standing the following courses: 189-201A,B, 189-202A,B, 189-221A,B. He should preferably also have taken 189-222A,B.

Requirements for Honours in Mathematics

For an Honours Degree in Mathematics the student must obtain 90 course credits; at least 60 of these should correspond to Honours courses, or their equivalent not less than 45 to Honours courses in Mathematics. In addition to the latter, the student may count towards his 60 credit Honours requirement:

i) half of the courses he has taken from the Major Program in Mathematics (including Computer Science courses) for which no equivalent Honours course exist;

ii) (with the approval of the Department of Mathematics) certain courses in other departments which are at an Honours level, and are closely linked to Mathematics;

iii) (with the approval of the Department of Mathematics) half the courses he has taken in other departments, which while not necessarily explicitly mathematical in nature, are at an Honours level and broaden the student's scientific training. Students who transfer to Honours in Mathematics from other programs will have credits for previous courses assigned, as appropriate, by the Department.

The following courses are compulsory: 189-271D, 189-272D, 189-371D, 189-372D.

To remain in the Honours Program, and to be awarded the Honours Degree, the student must maintain a 2.8 Grade Point Average.

Guidelines for selection of courses in the Honours Program

a. The compulsory courses may be spread over the three years study.

b. Students taking 189-271D and 189-272D simultaneously are advised to register also for 189-273D.

c. Students are advised to include in their program the following courses: 189-273D, 189-356A, 189-357B, 189-374D, 189-380D.

d. Students interested in Statistics should register for 189-456D and 189-487D in addition to 189-356A and 189-357B.

e. Students in Applied Mathematics should register for some or all of the courses 189-470A, 189-474A, 189-475B, 189-478A and 189-479B in addition to 189-374D. They are also advised to select courses in areas to which they can apply their mathematics.

MUSIC (211)

The Faculty of Music offers several courses that may be taken by students in the Faculties of Arts and of Science. Students following the Bachelor of Arts or Bachelor of Science curriculum may take music courses as electives.

Sequence A is designed for students who have at least high school Matriculation Music or the equivalent. The courses in this series offer a technical study of the theory, analysis, history and literature of western music.

Sequence B is intended for those students who have had little or no formal training in music before coming to university. The courses of this sequence emphasize the study of the history and literature of western music, and contain only that amount of technical study (notation, theory) indispensable to the objectives of these courses.

Students who begin their studies in sequence A normally continue in the same series. However, a change from sequence A to sequence B is allowed after either Music 211-223D or Music 214-180D.

Sequence A

214-180D. HISTORY SURVEY (MEDIAEVAL, RENAISSANCE, AND BAROQUE). (6 credits; *Prerequisite or corequisite:* Music 211-223D or permission of instructor.) PROFESSOR HELMER

211-223D. MELODY AND COUNTERPOINT. (6 credits; *Prerequisite:* Matriculation Music or McGill Preparatory Theory Secondary II or equivalent.) For course description see Music *Department of Theory Handbook.* STAFF

211-224D. TONAL HARMONY AND ANALYSIS. (6 credits; *Prerequisite or corequisite:* 211-223D [or old course 211-121D].) For course description see Music *Department of Theory Handbook.* STAFF

214-280D. HISTORY SURVEY (CLASSICAL AND ROMANTIC; 20th CENTURY). (6 credits; *Prerequisite:* Music 214-180D.) PROFESSOR MINORGAN

211-321D. 19th AND 20th CENTURY THEORY AND ANALYSIS. (6 credits; *Prerequisites:* 211-223D and 211-224D [or old courses 211-121D and 211-221D].) For course description see Music *Department of Theory Handbook.* STAFF

NOTE: Music History and Literature courses 214-380A to -389A all have prerequisites of History Survey 214-180D, *and* -280D, or permission of the instructor. These courses are *not* restricted to Honours students.

214-380A. MEDIAEVAL MUSIC. (3 credits; not given in 1973-73.)
214-381A. RENAISSANCE MUSIC. (3 credits.) PROFESSOR DUCHOW
214-382A. BAROQUE MUSIC. (3 credits; not given in 1973-74.)
214-383A. CLASSICAL MUSIC. (3 credits.) PROFESSOR MARKS
214-384B. ROMANTIC MUSIC. (3 credits; not given in 1973-74.)
214-385B. TWENTIETH CENTURY MUSIC. (3 credits.) PROFESSOR CHERNEY
214-386A. CHAMBER MUSIC LITERATURE. (3 credits; not given in 1973-74.)
214-387B. OPERA LITERATURE. (3 credits; not given in 1973-74.)
214-388B. KEYBOARD LITERATURE. (3 credits.) PROFESSOR HELMER
214-389B. ORCHESTRAL LITERATURE. (3 credits; not given in 1973-74.)
214-390A. VOCAL LITERATURE. (3 credits.) PROFESSOR MARKS
214-391B. CANADIAN MUSIC. (3 credits.) PROFESSOR MINORGAN

Sequence B

214-215D. INTRODUCTION TO THE ART OF MUSIC. (6 Credits; 3 hours plus 1 hour of guided listening; no music prerequisite needed.) A course designed to provide grounding in the historical styles, materials, and forms of western music as well as in related elementary theory and notation. Selected masterpieces of various periods will be presented and analysed. PROFESSOR MARKS

214-316A. MUSIC OF THE MIDDLE AGES. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor.) European music from 600 to 1400 with special emphasis on the social milieu and performance practice of the period. MRS. KIMMEL

214-317B. MUSIC OF THE RENAISSANCE. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor.) A study of the main developments in sacred and secular music of the 15th and 16th centuries. Franco-Flemish tradition and its diffusion in Italy, Spain, Germany and England. Renaissance music and contemporary thought. Poetry and music in the Renaissance. Instrumental music of the Renaissance. MR. DEVRIES

214-318A. MUSIC OF THE BAROQUE. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor). The historical and sociological development of music from 1600 to 1750. Vocal and instrumental music, both sacred and secular. New forms (opera, cantata, oratorio, sonata, concerto grosso, etc.). Musical instruments. Works of composers from G. Gabrieli and Monteverdi to Handel and Bach. MRS. CAVANAGH

214-319B. MUSIC OF THE CLASSICAL PERIOD. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor). The course will survey the music written in the period encompassed by the Pre-Classic foundations of the music of Haydn, Mozart and Beethoven, beginning about 1750, and proceeding up to the death of Franz Schubert in 1828. MRS. CAVANAGH

214-326A. MUSIC OF THE ROMANTIC PERIOD. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor; not given in 1973-74.) The course will trace the development of the Romantic idiom from its beginnings in the late eighteenth century to the end of the nineteenth century, and follow the development by an analysis of works by major composers in the form of lied, symphony, symphonic poem, chamber music and opera.

214-327B. MUSIC OF THE 20th CENTURY. (3 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor; not given in 1973-74.) Major musical developments of the 20th century from turn-of-the-century experimentalism to the present. Nationalism, neo-classicism, dodecaphony, serialism, stochastic music, microtonal music, computer music, etc. Works of composers from Debussy and Mahler to Boulez and Stockhausen.

214-328D. MUSIC CULTURES OF THE WORLD. (6 Credits; 3 hours plus 1 hour of guided listening; *Prerequisite:* Music 214-215D or by permission of the instructor; not given in 1973-74.) An introductory course in folk music designed to provide a basic technical understanding of the theories and methods of Ethnomusicology through the study of representative musical cultures from Asia, the Middle East, the Balkans, and Africa. A survey of the ballad traditions of Europe circulating in oral transmission. In addition, musical aspects will be related to their social and cultural context.

Music Ensembles

Arts or Science students may, with the permission of the instructor and the Associate Dean, participate in one of the following ensembles in a given year. Students should arrange through the Faculty of Music office (392-4501) for the necessary audition.

These courses are *not* restricted to Honours students.

243-289A/243-389B. WOODWIND ENSEMBLE. (6 Credits; *Prerequisite:* Audition.) STAFF

243-290A/243-390B. BAND. (6 Credits; *Prerequisite:* Audition.) PROFESSOR HUGHES

243-291A/243-391B. BRASS ENSEMBLE. (6 Credits; *Prerequisite:* Audition.) PROFESSOR LAWTON

243-292A/243-392B. CONCERT CHOIR. (6 Credits; *Prerequisite:* Audition.) PROFESSOR RIDDELL

243-294A/243-394B. CONTEMPORARY MUSIC ENSEMBLE. (6 Credits; *Prerequisite:* Audition.) PROFESSOR PLAWUTSKY

243-296A/243-396B. OPERA WORKSHOP. (6 Credits; *Prerequisite:* Audition.) PROFESSOR DELLA PERGOLA

243-297A/243-397B. ORCHESTRA. (6 Credits; *Prerequisite:* Audition.) PROFESSOR PLAWUTSKY

243-299A/243-399B. STRING ENSEMBLE. (6 Credits; *Prerequisite:* Audition.) PROFESSOR CULBREATH

NORTH AMERICAN STUDIES PROGRAM

This interdisciplinary program is being offered to give undergraduates an opportunity to gain a fairly comprehensive view of the growth and achievement of Canadian or United States civilizations, or a combination of both. For a fuller description of the Canadian Studies option, see p. 64.

The other choices are: 1) an option in U.S. Studies, concentrating on courses in the American field, or 2) an option in North American Studies in which courses from both areas are elected.

In taking the U.S. Studies Option the student will select a minimum of 54 credits dealing with the United States. These will be drawn from the Departments of English, History, Economics and Political Science.

In taking the North American Studies Option the student will select a minimum of 54 credits among those listed below.

Please consult Professor Buitenhuis, Department of English.

Anthropology

Prerequisites are required for most courses above the E20 level. Students lacking prerequisites or written permission from the course instructor may be required to drop courses.

151-236D. INDIGENOUS PEOPLES OF NORTH AMERICA: A GEOGRAPHICAL AND CULTURAL APPROACH. (6 Credits.)

151-344A. ETHNOHISTORY OF NEW FRANCE. (3 Credits; *Prerequisite:* Honours or major status in Anthropology or consent of instructor.)

Architecture

301-204B. HISTORY OF ARCHITECTURE IN CANADA. *(Prerequisite:* 301-102B.)

Economics

154-200D or 154-250D is prerequisite to all upper level courses in Economics except those for which other provision is made in the course description.

154-205A. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY I. (3 Credits; *Prerequisite:* 154-200D or consent of instructor.)

154-206B. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY II. (3 Credits; *Prerequisite:* 154-205A.)

154-302D. MONEY AND BANKING. (6 Credits.)

154-304D. CANADIAN ECONOMIC POLICY. (6 Credits.)

154-305D. GOVERNMENT AND BUSINESS. (6 Credits.)
154-306D. LABOUR ECONOMICS AND INSTITUTIONS. (6 Credits.)
154-311D. NORTH AMERICAN ECONOMIC DEVELOPMENT. (6 Credits; *Prerequisite:* 154-200D or 154-201D.)
154-312D. POLITICAL ECONOMY OF DEPENDENCE IN THE WESTERN HEMISPHERE. (6 Credits.)
154-352D. MACROECONOMICS. (6 Credits.)
154-400D. ECONOMIC ANALYSIS. (6 Credits.)
154-404D. TRANSPORTATION. (6 Credits.)
154-408D. PUBLIC FINANCE. (6 Credits.)
154-468A. URBAN AND REGIONAL ECONOMICS. (3 Credits.)

English

120-E23A (228A). CANADIAN LITERATURE. (3 Credits.)
120-E32B (229B). CANADIAN LITERATURE. (3 Credits.)
120-360D. THE DEVELOPMENT OF PROSE FICTION IN CANADIAN LITERATURE. (6 Credits.)
120-463A. CANADIAN LITERATURE. (3 Credits.)
120-230A. AMERICAN LITERATURE. (3 Credits.) Puritans — 1860.
120-231B. AMERICAN LITERATURE. (3 Credits.) 1860 to present.
120-334A. 20TH CENTURY AMERICAN POETRY. (3 Credits.)
120-335D. MODERN NORTH AMERICAN FICTION. (6 Credits.)
120-461B. AMERICAN LITERATURE CONFERENCE COURSE. (3 Credits.) Poetry of T. S. Eliot.
120-468A. LITERARY THEMES. (3 Credits.) Emily Dickinson.
120-458B. 20TH CENTURY. (3 Credits.) William Faulkner.

French

126-227A. INTRODUCTION A LA LITTERATURE QUEBECOISE I. (3 Credits.)
126-227B. INTRODUCTION A LA LITTERATURE QUEBECOISE II. (3 Credits.)
126-229D. INITIATION A LA LITTERATURE QUEBECOISE. (6 Credits.)
126-264D. HISTOIRE DE LA CIVILISATION QUEBECOISE. (6 Credits.)
126-329D. ROMAN QUEBECOIS CONTEMPORAIN. (6 Credits.)
126-333A. LE THEATRE QUEBECOIS. (3 Credits.)
126-334B. LE CINEMA QUEBECOIS. (3 Credits.)
126-361D. ROMAN QUEBECOIS I. (6 Credits.)
126-364D. LA POESIE QUEBECOISE. (6 Credits.)
126-432D. POESIE QUEBECOISE CONTEMPORAINE. (6 Credits.)
126-433A. LES CHANSONNIERS QUEBECOIS. (6 Credits.)
126-436D. EVOLUTION DES IDEES AU QUEBEC AU 19e SIECLE. (6 Credits.)
126-442D. EVOLUTION DE LA LANGUE FRANÇAISE AU CANADA. (6 Credits.)
126-461D. ROMAN QUEBECOIS II. (6 Credits.)
126-462D. LES ESSAYISTES QUEBECOIS — EXPLOSION DE LA PENSEE DEPUIS BORDUAS. (6 Credits.)
126-492B. SEMINAIRE SPECIALISE DE LITTERATURE QUEBECOISE. (3 Credits.)
FRENCH CANADA STUDIES PROGRAM. Consult page 67 of this Announcement.

Geography

183-301D. GEOGRAPHY OF CANADA. (6 Credits.)
183-309A. GEOGRAPHY OF QUEBEC. (3 Credits.)
183-336D. INDIGENOUS PEOPLES OF NORTH AMERICA. (6 Credits.)

History

101-202D. INTRODUCTION TO THE HISTORY OF CANADA. (6 Credits.)
101-211A. THE U.S. TO 1865. (3 Credits.)
101-221B. THE U.S. SINCE 1865 (3 Credits.)
101-311A. EMERGING MODERN AMERICA, 1876-1912. (3 Credits.)
101-321B. MODERN AMERICA, 1912-1960. (3 Credits.)

101-323D. SOCIAL AND ECONOMIC PROBLEMS IN THE HISTORY OF FRENCH CANADA FROM THE 17TH CENTURY TO THE MIDDLE OF THE 19TH CENTURY. (6 Credits; *Prerequisite:* 202D.)

101-344A. THE ETHNOHISTORY OF NEW FRANCE. (3 Credits; *Prerequisite:* History 202D.)

101-352D. EMERGENCE OF ENGLISH CANADA: 1791-1867. (6 Credits; *Prerequisite:* 202D or consent of instructor.)

101-353D. WAR AND SOCIETY IN CANADIAN HISTORY. (6 Credits; *Prerequisite:* History 202D; This course is not open to candidates who have previously taken History 372D.)

101-362D. THE WEST IN CANADIAN HISTORY. (6 Credits; *Prerequisite:* 202D.)

101-363D. CONTEMPORARY CANADA, 1890-1970. (6 Credits; *Prerequisite:* History 202D or equivalent, or consent of instructor; This course is not open to candidates who have previously taken History 302A and 312B.)

101-403D. REGIONAL, SOCIAL AND CULTURAL HISTORY OF QUEBEC. (6 Credits; *Prerequisite:* History 202D or consent of instructor. A reading and speaking knowledge of French is essential.)

101-432A. THE HISTORICAL LITERATURE OF THE MARITIME PROVINCES. (3 Credits; *Prerequisite:* History 202D or equivalent, or consent of instructor.)

Music

214-391B. CANADIAN MUSIC. (3 Credits; *Prerequisite:* 214-280D or consent of instructor.)

North American Studies

120-496D. INTERDISCIPLINARY SEMINAR IN NORTH AMERICAN STUDIES. (3 Credits.)

Political Science

160-211D. INTRODUCTION TO COMPARATIVE GOVERNMENT. (6 Credits.)

160-320A. CANADIAN POLITICAL PROCESS. (3 Credits; *Prerequisite:* 160-211D.)

160-337B. PUBLIC ADMINISTRATION. (3 Credits; *Prerequisite:* 160-321D or consent of instructor.)

160-341A. THE DEVELOPMENT OF CANADA'S FOREIGN POLICY. (3 Credits; *Prerequisite:* 160-211D or consent of instructor.)

160-342B. THE ISSUES, CONCEPTS AND PROCESSES OF MODERN CANADIAN EXTERNAL RELATIONS. (3 Credits; *Prerequisite:* Political Science 341A.)

160-415B. POLITICAL PARTIES. (3 Credits; *Prerequisites:* 160-211D and one other course in Comparative Government.)

160-421B. PROBLEMS IN CANADIAN POLITICS AND GOVERNMENT. (3 Credits; *Prerequisites:* 160-221D and 160-320A.)

Sociology

166-E21A. INTRODUCTION TO SOCIOLOGY. (3 Credits.)

166-E42B. SOCIAL STRATIFICATION. (3 Credits; *Prerequisite:* 166-E21A.)

166-217A. MASS COMMUNICATIONS. (3 Credits; *Prerequisite:* Introduction to Sociology.)

166-217B. SOCIAL ASPECTS OF MASS COMMUNICATIONS. (3 Credits; *Prerequisite:* Introduction to Sociology & 166-217A or permission of instructor.)

166-223B. SOCIAL STRATIFICATION. (3 Credits; *Prerequisite:* Introduction to Sociology.)

166-224B. CANADIAN SOCIETY. (3 Credits; *Prerequisite:* Introduction to Sociology.)

166-326B. SOCIOLOGICAL ASPECTS OF POLITICAL BEHAVIOUR. (3 Credits.)

166-435A. SOCIOLOGY OF POPULAR CULTURE. (3 Credits; *Prerequisites:* Introductory Sociology, Mass Communications (217A) (formerly 317B), or consent of instructor.)

PHILOSOPHY (107)

Samuel Bronfman Building, Telephone 392-5170

Major in Philosophy

Seven full courses or equivalent half courses (42 credits) in Philosophy, to be selected with the approval of the Department, plus two other full courses, or equivalent (12 credits), from Arts or Science Departments. Students are required to take the following three courses:

FIRST YEAR: Introduction to Philosophy 107-200D

ANY YEAR: Greek Philosophy 107-340D
Either Mediaeval Philosophy 107-341D, *or* Modern Philosophy 107-350D, *or* 19th Century Philosophy 107-351D.

The Philosophy course offerings are grouped below under several headings. These categories are not intended to be definitive, but merely to serve as a rough guide to the student. Note that two additional full courses are required for the Philosophy major. Thus the student emphasizing (for example) the history of philosophy will find appropriate related courses within Classics, Islamic Studies, and Jewish Studies, etc. The student emphasizing philosophy of language will find related courses in Linguistics. However, approval of the Departmental Adviser is required both for the seven Philosophy and the two "outside" courses.

Logic & Philosophy of Science:
107-210A, 211B, 321A, 335D, 410D, 411D, 420D, 423A, 424B, 427A, 428B

Philosophy of Language:
107-212B, 313D, 317A, 318B, 411D, 417D, 413A, 414B

Value Theory & Philosophy of Religion:
107-301D, 305A, 306B, 332D, 401A, 402B, 404D, 406A, 407B, 431A, 432B, 448A, 472D

Epistemology & Metaphysics:
107-212B, 317A, 318B, 335D, 381D, 411D, 413A, 414B, 481D, 485A, 486B

History of Philosophy:
107-340D, 341D, 350D, 351D, 345D, 401A, 402B, 411D, 413A, 414B, 441A, 442B, 444D, 448A, 452B, 455A, 456B, 458D, 463D, 465D

Major Adviser: Professor Jeremy Walker — 392-5169

Honours in Philosophy

Eleven courses (66 credits) in Philosophy, as prescribed below. In addition, a reading competence in a language which is taught at McGill: this to be demonstrated either by taking a third-year level course or by an examination. (Competence in English and French is presupposed.)

FIRST YEAR:
* Logic 107-210A & 107-211B
* Greek Philosophy 107-340D
* Introduction to Philosophy 107-200D

SECOND YEAR:
Ethics 107-301A & 107-302B
Either Mediaeval Philosophy 107-341D, *or* Modern Philosophy 107-350D, *or* 19th-century Philosophy 107-351D
Tutorial 107-398A & 107-399B, or other optional course in Philosophy
Optional course in Philosophy

THIRD YEAR:
Either Mediaeval Philosophy 107-341D, *or* Modern Philosophy 107-350D, *or* 19th-century Philosophy 107-351D
Half course in 20th-century analytic philosophy
Half course in 20th-century metaphysics or epistemology
Tutorial 107-498A & 107-499B with Honours Thesis
Optional course in Philosophy

Exceptions to the prescribed pattern may be petitioned before the Department through the Adviser.

Joint Honours in Philosophy

Six full courses or equivalent half courses (36 credits) in Philosophy. Courses marked with an asterisk are required; normally Introduction to Philosophy 107-200D will be taken in First year. Consult the Department for specific arrangements.

ADMISSION REQUIREMENT: 3.0 C.G.P.A. A 3.0 G.P.A. overall and 3.0 average in Philosophy courses must be maintained.

Honours Adviser: Professor George DiGiovanni, Tel.: 392-5155.

Course Descriptions

The Department of Philosophy does not use the second digit of the course number to distinguish Honours courses. Where such distinctions exist they will be noted in the prerequisites. Rather, the second digit indicates the general subject category of the course according to the following scheme:

0 — Value theory and related subjects; 1 — Logic and related subjects; 2 — Philosophy of Science; 3 Philosophy of Religion; 4,5,6 — History of Philosophy; 7 — Philosophy of Politics; 8 — Metaphysics; 9 — Tutorials and special seminars.

107-200D. INTRODUCTION TO PHILOSOPHY. (6 Credits.) Topic for 1973-74: Freedom, Morality and Language. An introduction to some of the main themes of philosophy.
PROFESSOR TAYLOR

107-210A. INTRODUCTION TO DEDUCTIVE LOGIC. (3 Credits.) Including Sentential and Quantificational Logic. Not open to students who have taken or are taking Math. 318, Math. 489A and 490B, Phil. 410.
PROFESSOR BEATTY

107-211B. INTRODUCTION TO DEDUCTIVE LOGIC. (3 Credits; *Prerequisite:* Phil. 210A or an equivalent background in logic.) Further topics in logic.
PROFESSOR BEATTY

107-212B. INTRODUCTION TO PHILOSOPHICAL ANALYSIS. (3 Credits; Not given in 1973-74.)

107-301D. ETHICS. (6 Credits.) The main types of ethical theory.
PROFESSOR NORTON

107-305A. AESTHETICS I. (3 Credits; Not given in 1973-74.)

107-306B. AESTHETICS II. (3 Credits; Not given in 1973-74.)

107-313D. PHILOSOPHY OF LANGUAGE. (6 Credits; Not given in 1973-74.)

107-317A. PROBLEMS IN ANALYTIC PHILOSOPHY. (3 Credits; *Prerequisite:* Consent of the lecturer.) Topic for 1973-74: Idealism versus Empiricism; The theory of mind and the "Linguistic turn".
PROFESSOR McGILVRAY

107-318B. PROBLEMS IN ANALYTIC PHILOSOPHY. (3 Credits; *Prerequisite:* Philosophy 317A.) Topic for 1973-74: Consideration of the theories of some of the leading figures in the analytic movement such as Frege, Russell, Wittgenstein, Austin, Ryle and Strawson.
PROFESSOR McGILVRAY

107-321A. PHILOSOPHY OF SCIENCE. (3 Credits; Not given in 1973-74.)

107-322B. PHILOSOPHY OF SCIENCE. (3 Credits.) An introductory course in the philosophy of science with no special prerequisites. Topic for 1973-74: The philosophy of the social sciences.
PROFESSOR BEATTY

107-332D. PHILOSOPHY OF RELIGION. (6 Credits; *Prerequisite:* One full course in Philosophy or consent of the lecturer.) A discussion of the main problems of the philosophy of religion as considered in the works of various philosophers.
PROFESSOR McKINNON

107-335D. INTRODUCTION TO PHILOSOPHY OF HISTORY. (6 Credits; Not given in 1973-74.) The nature and significance of historical thinking.

107-340D. GREEK PHILOSOPHY. (6 Credits.) A study of ancient philosophy concentrating on the pre-Socratic philosophers, Plato, and Aristotle. (See also Classics 407D.)
PROFESSOR TRENTMAN

107-341D. MEDIAEVAL PHILOSOPHY. (6 Credits.) An examination of philosophers selected from among the great Latin, Arabic, and Jewish thinkers.
PROFESSOR HARVEY

107-345D. SURVEY OF JEWISH PHILOSOPHY. (6 Credits.) Topic for 1973-74: Discussions of major works of Jewish philosophers, with focus on the nature of man, prophecy, love. First term: Philo of Alexandria to the Maimonidean revolution; Second term: Spinoza to existentialism.
PROFESSOR HARVEY

107-350D. MODERN PHILOSOPHY. (6 Credits; *Prerequisite:* One full course in Philosophy or consent of the lecturer.) From the Renaissance to Kant. A study of philosophers selected from among such thinkers as Montaigne, Descartes, Malebranche, Spinoza, Leibniz, Locke, Berkeley, Hume and Kant.
PROFESSOR BRACKEN

107-351D. NINETEENTH CENTURY PHILOSOPHY. (6 Credits; *Prerequisite:* Phil. 350D.) A study of philosophers selected from among such traditions as the Hegelian, Marxist, Existentialist, Utilitarian, and the forebearers of Phenomenology.
PROFESSORS DiGIOVANNI AND WALKER

107-381D. PROBLEMS OF PHILOSOPHY. (6 Credits; *Prerequisite:* One full course in Philosophy or consent of the lecturer.) Topic for 1973-74: Philosophie allemande, philosophie française,

et philosophie anglaise: Comparaison des concepts et des problèmes fondamentaux. Lecture et interprétation de textes choisis (in French and English). PROFESSOR KLIBANSKY

107-398A/107-399B. TUTORIALS. (6 Credits.) Open to Second year Full Honours students in Philosophy, and to other students, with consent of the Department.
PROFESSOR ROBINSON AND STAFF

107-401D. SEMINAR IN THE HISTORY OF ETHICS. (6 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: The development of natural law theories.
PROFESSORS TRENTMAN AND ROBINSON

107-404D. MORAL PHILOSOPHY. (6 Credits; *Prerequisite:* One full course in Philosophy or consent of the lecturer.) Topic for 1973-74: Human beings and human relationships.
PROFESSOR WALKER

107-406A. PHILOSOPHY AND LITERATURE. (3 Credits; Not given in 1973-74.)

107-407B. PHILOSOPHY AND LITERATURE. (3 Credits; Not given in 1973-74.)

107-410D. INTERMEDIATE LOGIC. (6 Credits; *Prerequisite:* Philosophy 211B or equivalent.) Axiomatic treatment of propositional and predicate calculus. Introduction to philosophy of mathematics. Computability and decidability. PROFESSOR BEATTY

107-411D. MEDIAEVAL LOGIC AND GRAMMAR. (6 Credits; *Prerequisite:* Consent of the lecturer.) Topics will be selected according to the interests of the class.
PROFESSOR TRENTMAN

107-413A. RECENT AND CONTEMPORARY BRITISH PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-414B. RECENT AND CONTEMPORARY BRITISH PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-417D. PROBLEMS IN SEMANTICS. (6 Credits; Not given in 1973-74.)

107-420D. METHODOLOGY AND PHILOSOPHY OF SCIENCE. (6 Credits; *Prerequisite:* Consent of the lecturer.) Topic for 1973-74: Philosophy of Scientific Research.
PROFESSOR BUNGE

107-423A. FORMAL METHODS IN PHILOSOPHY AND THE SOCIAL SCIENCES. 3 Credits; Not given in 1973-74.)

107-424B. FORMAL METHODS IN PHILOSOPHY AND THE SOCIAL SCIENCES. (3 Credits; Not given in 1973-74.)

107-427A. PHILOSOPHY OF PHYSICS. (3 Credits; Not given in 1973-74.)

107-428B. PHILOSOPHY OF PHYSICS. (3 Credits; Not given in 1973-74.)

107-431A. SEMINAR IN PHILOSOPHY OF RELIGION. (3 Credits; Not given in 1973-74.)

107-438B. SEMINAR IN PHILOSOPHY OF RELIGION. (3 Credits; Not given in 1973-74.)

107-441A. SEMINAR IN ANCIENT PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-442B. SEMINAR IN ANCIENT PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-444D. SEMINAR IN THE HISTORY OF PHILOSOPHY. (6 Credits; *Prerequisite:* consent of the lecturer.) Topic: Hume's Epistemology. PROFESSOR NORTON

107-448A. LEGAL AND MORAL PHILOSOPHY OF THE JEWISH TRADITION. (3 Credits; Not given in 1973-74.)

107-452A. THEMES IN THE HISTORY OF JEWISH PHILOSOPHY. (3 Credits.) Topic for 1973-74: Theories of philosophical anthropology and the development of racism.
PROFESSOR POPKIN

107-455A. SEMINAR IN 17TH AND 18TH CENTURY PHILOSOPHY. (3 Credits; *Prerequisite:* One full course in Philosophy or consent of the lecturer.) Topic for 1973-74: Berkeley's theory of vision. PROFESSOR BRACKEN

107-456B. SEMINAR IN 17TH AND 18TH CENTURY PHILOSOPHY. (3 Credits; *Prerequisite:* Philosophy 455A.) Topic for 1973-74: Berkeley's theory of vision. PROFESSOR BRACKEN

107-458D. SEMINAR IN HEGEL. (6 Credits; *Prerequisite:* Consent of the lecturer.) Topic for 1973-74: Phenomenology Ch. VI Section B: Alienation, Culture, Enlightenment and Revolution.
PROFESSOR ROBINSON

107-463D. SEMINAR IN KIERKEGAARD. (6 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: Kierkegaard's religious writings. PROFESSOR McKINNON

107-465D. SEMINAR IN KANT. (6 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: The *Critique of Pure Reason.* PROFESSOR DiGIOVANNI

107-472D. PHILOSOPHY OF POLITICS. (6 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: Reading *Capital.* PROFESSOR WALKER

107-481D. METAPHYSICS, DIALECTICS, LOGIC AND EPISTEMOLOGY. (6 Credits.) Topic for 1973-74: Modern phenomenology and existentialism. PROFESSOR DiGIOVANNI

107-483A. SEMINAR IN SYSTEMATIC PHILOSOPHY. (3 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: An examination of several problems in the philosophy of language, e.g. translation, meaning, truth, and reference. PROFESSOR McGILVRAY

107-484B. SEMINAR IN SYSTEMATIC PHILOSOPHY. (3 Credits; *Prerequisite:* Philosophy 483A.) Topic for 1973-74: Further Issues in the Theory of Language. An analysis of two or three issues selected from among these: presuppositions, tenses, referential semantics, the performance/competence distinction. PROFESSOR McGILVRAY

107-485A. METAPHYSICS. (3 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: Metaphysics and science. PROFESSOR BUNGE

107-486B. METAPHYSICS. (3 Credits; *Prerequisite:* Philosophy 485A.) Topic for 1973-74: Metaphysics and science. PROFESSOR BUNGE

107-487A. SEMINAR IN PROBLEMS OF PHILOSOPHY. (3 Credits; *Prerequisite:* consent of the lecturer.) Topic for 1973-74: Philosophy of the later Plato. PROFESSOR KLIBANSKI

107-488B. SEMINAR IN PROBLEMS OF PHILOSOPHY. (3 Credits; *Prerequisite:* Philosophy 487A.) Topic for 1973-74: Continuation of Philosophy 487A. PROFESSOR KLIBANSKI

107-493A. SEMINAR IN PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-494B. SEMINAR IN PHILOSOPHY. (3 Credits; Not given in 1973-74.)

107-499B. TUTORIALS. (6 Credits.) Open to Third year Full Honours students in Philosophy, and to other students with consent of the Department. PROFESSOR ROBINSON AND STAFF

POLITICAL SCIENCE (160)

Stephen Leacock Building, Room 434, Telephone 392-5239

Major Program

The Major program in Political Science consists of 9 full courses (54 credits) of which at least 7 full courses (42 credits) must be in Political Science. A student is encouraged to take up to 2 (12 credits) of these 9 courses outside the Department provided they are closely related to his Political Science program.

In the U1 year, a majors student must take a total of twelve credits in Political Science, covering at least two of the four main fields of concentration offered by the Department (Comparative Government and Politics, Canadian and Quebec Government and Politics, International Politics, and Political Theory). The course requirements in the various fields are outlined below.

A student is asked to choose one of the fields (named above) as his field of concentration in political science. Overall, while some concentration in one area of the discipline is considered beneficial, excessive specialization is discouraged. Students are therefore required to take at least twelve credits in Political Science outside their field of concentration. Further information may be obtained from Professor Barbara Haskel in Leacock 512A, 392-5249 (during her office hours).

Other Major Programs

Major programs are available with the Departments of Economics and History. Other programs may be arranged at a student's request. The requirements for these degrees are a minimum of 54 credits in both majors subjects to be divided on a 4-5 basis between the two subjects. Students should consult their advisers. A student in such a major must take 12 credits in 2 Political Science areas in U1 and at least 12 credits in Political Science, but outside his field of concentration, during his 3 university years.

Honours Program

The Honours program in Political Science consists of 10 full courses (60 credits) of which at least 7 full courses (42 credits) must be in Political Science. A student may take up to three of these 10 courses outside the Department provided they are closely related to his Political Science program.

In the U1 year, a student must take a total of two full courses (12 credits) in Political Science, covering at least two of the four main fields offered by the Department (Comparative Politics, Canadian and Quebec Government and Politics, International Politics, Political Theory). The course requirements in the various fields are outlined below.

Overall, while some concentration in one area of the discipline is considered beneficial, excessive specialization is discouraged. Students are therefore required to take at least two full courses (12 credits) in Political Science outside their area of concentration.

To be eligible for entry into an Honours program, a student should have a good B average in his CEGEP level work. To remain in Honours, a C&PA of at least 3 in Political Science courses and an overall C&PA of at least 2.8 is required. Students must also maintain a satisfactory pattern of performance in their Political Science courses (i.e., very few, if any, grades below 70%).

Students awarded Honours standing in U1 may lose it at the end of the year or in subsequent years if their performance is not up to these standards. Conversely, students who were not awarded Honours standing in U1 may attain it in subsequent years if their performance merits it. To be awarded Honours at graduation, a student must normally be registered as an Honours student at the beginning of his U3 year. At graduation, a student's Honours standing will be determined by his overall record in the Honours program.

Further information may be obtained from Professor Thomas Bruneau, in Leacock 512F, 392-5247.

Joint Honours Programs

Political Science and Economics
History
Philosophy
Sociology
Anthropology

The requirements for these degrees are a minimum of 5 to 6 full courses (30 to 36 credits) in Political Science and 5 to 6 full courses (30 to 36 credits) in the other Honours subject depending on the particular program. The same principles concerning the distribution of courses that were outlined above for the single Honours program apply here too, both at the U1 level and overall.

Course Descriptions

This calendar is prepared early in the year and so is likely to need modification by the time the academic year begins. A mimeographed supplement is available in the department office and should be consulted.

Students in the second year of the CEGEP-equivalent programme (E2) may register in one or more 200 level courses or may register in one or more 300 level courses provided they have taken the necessary prerequisites. U2 students may take 400 level courses without restriction subject only to having taken the necessary prerequisites.

Specific course prerequisites may be waived by instructors in individual cases.

160-211D. INTRODUCTION TO COMPARATIVE GOVERNMENT AND POLITICS. (6 credits.) This course approaches the basic concepts, institutions and processes of politics in Canada, the United States, Great Britain, France and the Soviet Union through the utilization of fundamental tools of comparative analysis. PROFESSOR BROWN

160-212A. TECHNIQUES OF SOCIAL RESEARCH. (3 credits.) An introduction to the practical and theoretical problems and sociological research. Among the topics considered are the formation of research problems, the selection of samples, interviewing, and questionnaire construction, and the analysis and interpretation of data. Students will have practical experience in these techniques. PROFESSOR VAILLANCOURT

160-221D. GOVERNMENT OF CANADA. (6 credits.) An examination of the operation of parliamentary institutions in a federal state, and of the operation of federalism in Canada. PROFESSOR MALLORY

157-226A. INTRODUCTION A LA VIE POLITIQUE QUEBECOISE. (3 crédits.) Une introduction à la vie politique québécoise à travers l'étude des institutions, des idéologies et des comportements politiques. Une attention particulière sera accordée aux changements survenus dans le système politique québécois depuis 1960 et à ses relations avec le système politique canadien. Ce cours est donné en français et constitue un prérequis pour les cours plus avancés sur la politique québécoise. PROFESSEUR BERNARD

160-227A. POLITICAL CHANGE IN THE THIRD WORLD: INDEPENDENCE AND NATION BUILDING. (3 credits.) An introductory course on the politics of the Third World, dealing primarily with the role of forces in the achievement of independence and the building of nations. Several theories on independence movements and revolutions will be discussed and then related to experiences in Asia, Africa and Latin America. PROFESSOR BRUNEAU

160-231D. POLITICAL THEORY. (6 credits. This course is normally a prerequisite for all upper level courses in political philosophy.) The first half will be taken up with a discussion of contemporary political issues: e.g., the understanding of politics, the politics of violence, and community on the grounds of authority. The second term will be devoted to the study of certain works of philosophy and literature which reflect political reality.
PROFESSORS SARF, SHINGLER, TAYLOR

160-244A. INTERNATIONAL POLITICS. (3 credits.) This is an experimental course that deals with the factors, domestic and international, which determine foreign policy behaviour. There will be a minimum of compulsory lectures. Students will choose among a number of options of study which best suit their individual needs. Students are asked to consult the course description distributed in Leacock 434. PROFESSOR STEINBERG

160-245B. THE INTERNATIONAL SYSTEM. (3 credits.) The course will focus on the setting of world politics. Particular emphasis will be placed on the nature of contemporary international politics. The stratification of the international system to which differences in technology and military power, economic power, legitimacy, and skill contribute, will be treated as well as forces such as increasingly rapid communications, nationalism, and ideology which cut across the system. PROFESSOR HASKEL

160-246A. INTERNATIONAL ORGANIZATION. (3 credits; Not given 1973-74.) This course will focus on the United Nations — its performance and problems. Special emphasis will be placed on three of its roles: as a forum for interest articulation and aggregation; as an agent for conflict management; and a source of pressure to redistribute values, wealth and skills.
PROFESSOR STEINBERG

160-247B. FOREIGN POLICY IN THE THIRD WORLD. (3 credits. Recommended: 160-244A or 160-227A.) This course will examine domestic and external sources of conflict within the Third World. It is experimental in form: students will work at their own pace through the use of individually designed modules. Students are requested to consult the special course description which is available in Leacock 434. MRS. BUTLER

160-313D. POLITICAL AND SOCIAL MOVEMENTS AND EXTRA-PARLIAMENTARY POLITICAL ACTION. (6 credits; Not given 1973-74.) After a general theoretical introduction of Fascism, Anarchism, Marxism and Democracy, case studies of various movements will be examined. These include labour movements, student movements, youth politics and the new left, minority group movements, anti-war movements and protests in the U.S.A., women's liberation and feminist movements. PROFESSOR VAILLANCOURT

157-316A. QUEBEC ET L'AMERIQUE DU NORD. (3 crédits.) Ce cours tentera de répondre à la question suivante: Dans quelle mesure le Québec est-il, malgré sa spécificité culturelle, une communauté nord-américaine? En 1973 les principaux thèmes étudiés seront les suivants: le freaks, la contestation, la violence, la drogue, la jeunesse.
PROFESSOR LATOUCHE

160-319D. POLITICS OF LATIN AMERICA. (6 credits.) This course will deal with the dynamics of political change in Latin America today. PROFESSOR BRUNEAU

160-320A. THE CANADIAN POLITICAL PROCESS (I). (3 credits; *Prerequisite:* At least one other course in Canadian or Comparative Government and Politics.) A critical analysis of different aspects of the Canadian Political Process. The first semester will be devoted to the socio-economic and political environment, political ideology and political culture, the electoral system, the party system, the ideology, structure and behaviour of parties and pressure groups.

160-321B. THE CANADIAN POLITICAL PROCESS (II). (3 credits; *Prerequisite:* At least one other course in Canadian Government or Comparative Government and Politics.) A critical analysis of aspects of the Canadian Political Process. The second semester will treat the socialization and communications processes, voting structures, elites and certain aspects of legislative, executive and administrative behaviour.

160-322A. POLITICS AND GOVERNMENT IN SOUTH ASIA (INDIA AND PAKISTAN.) (3 credits.) An examination of the politics of traditional society in South Asia; the nature of Western impact; the crises of modernization; nationalism; the nature of institution-building; the goals and performance of the political systems. PROFESSOR NAYAR

160-323B. POLITICS AND GOVERNMENT IN EAST ASIA (CHINA AND JAPAN). (3 credits; Not given 1973-74.) A survey of traditional and modern political society in China and Japan. Special emphasis is placed on governmental policy and institutions in relation to ideology in the Peoples' Republic of China and post-1945 Japan. PROFESSOR NOUMOFF

160-324D. POLITICS AND GOVERNMENT IN AFRICA. (6 credits.) The government and politics of African states south of the Sahara with reference to traditional political systems, colonial policies, nationalism, and the problem of nation building. PROFESSOR KUNZ

160-325D. GOVERNMENT AND POLITICS OF THE UNITED STATES. (6 credits.) A survey of American politics, including formal and informal processes of government; American political thought, political culture and socialization, public opinion, parties, interest groups, and formal institutions. In addition, problem areas, such as racism and the military-industrial complex, are discussed. PROFESSOR WALLER

160-327A. THE PRINCIPLES OF PUBLIC ADMINISTRATION. (3 credits; This course is offered in alternate years. Not given 1973-74.) An outline of the basic concepts employed in public administration will include organizational structure and behaviour, the concept of management and personnel development, the decision-making processes and the problems of change and innovation. The subject matter will be general although references will be made to Canadian examples. PROFESSOR METCALFE

160-328D. EUROPEAN GOVERNMENT AND POLITICS. (6 credits.) A systematic examination of major institutions of European political systems, both West and East, and of the processes of decision-making. Special attention will be paid to the problems of political change and to the role played by the bureaucracy, by parties and interest groups.

160-329A. THE POLITICAL SYSTEM OF THE U.S.S.R. (3 credits.) The course will be a study of Soviet politics: its roots in the past; its formative revolutionary experiences; the major domestic strategies which have been pursued under Lenin, Stalin, Khrushchev, and contemporary leaders; the concomitants of these choices in different spheres, for example in culture, in the economy, in organizational life. PROFESSOR HASKEL

160-332D. NON-WESTERN POLITICAL PHILOSOPHY. (6 credits; *Prerequisite:* 160-231D or consent of instructor. Not given 1973-74.) This course will concentrate on the major political-philosophical traditions of China, India, Islam and Africa. Students are required to have a background in political philosophy or one of the regions under consideration. Particular emphasis will be placed on the relationship between the underlying political/philosophic culture and its impact upon contemporary political forms. PROFESSOR NOUMOFF

160-333A. HISTORY OF POLITICAL AND SOCIAL THEORY (I). (3 credits. Recommended: 160-231D.) This course will explore the major themes and writers in Political Theory from the dawn of Greek political consciousness through the writings of St. Augustine. The political ideas of Hesiod, Thucydides, Plato, Aristotle, the Hellenistic philosophers, Hebrew political thought and prophecy, the Christian revolt against Classicism and the early church fathers will be explored through the significant texts of this period. PROFESSOR SARF

160-334B. HISTORY OF POLITICAL AND SOCIAL THEORY (II). (3 credits. *Prerequisite:* 160-231D.) Political theory of the Middle Ages and the early modern period until the Enlightenment. This course will deal with the Mediaeval writers and those of the early modern period up to and including the Enlightenment: e.g. Aquinas, Marsilio, Machiavelli, the Reformers, Hobbes, Locke, Montesquieu, Voltaire, d'Holbach, Bentham. PROFESSOR SARF

157-336B. QUEBEC ET LE CANADA. (3 crédits. *Prérequis:* 157-226A ou le consentement du professeur.) Comment les Canadiens anglais et les Québécois francophones se perçoivent-ils mutuellement? Existe-t-il des stéréotypes et des images communes? Quelles sont les principales différences culturelles entre les deux groupes? PROFESSOR CLOUTIER

160-337B. CANADIAN PUBLIC ADMINISTRATION. (3 credits; *Prerequisite:* 160-327A. This course is offered in alternate years. Not given 1973-74.) The student will undertake basic research work examining at least one problem in Canadian public administration. Attention will be directed towards all three levels of government, federal, provincial and municipal. PROFESSOR METCALFE

160-338A. UNIVERSITIES, INTELLECTUALS AND SOCIAL CRITICISM. (3 credits; Not given 1973-74.) This course compares different conceptions of the social purpose of social theory, and analyzes, historically and philosophically, the roles of universities, intellectuals and social criticism. Key elements include: the idea of an academy; scholarship; mass higher education and adolescence; rationalist social thought; the flight from politics; the responsibilities of intellectuals. PROFESSOR SHINGLER

160-339B. POLITICS, SCIENCE AND NATURE. (3 credits; Not given 1973-74.) An examination of man's collective relationships with nature, in selected societies and in contemporary social and political thought. Particular reference is made to the concepts of harmony, progress and perfection in an analysis of the technological transformation of nature and its historical basis in scientific thought, religion and philosophy. PROFESSOR SHINGLER

160-341A. THE DEVELOPMENT OF CANADA'S FOREIGN POLICY. (3 credits. *Prerequisite:* 160-221D. This course is offered in alternate years beginning in 1973-74.) An examination of the political and economic forces behind the development of a Canadian foreign policy.

A historic dimension will be provided in order that the student might assess the present conditions and limits impinging upon the implementation of a foreign policy for Canada.
PROFESSOR METCALFE

160-342B. THE ISSUES, CONCEPTS AND PROCESSES OF MODERN CANADIAN EXTERNAL RELATIONS. (3 credits. *Prerequisite:* 160-341A. This course is offered in alternate years beginning in 1973-74.) The current trends of Canada's foreign policy-making will be examined against the background of Canada-U.S. relations, Canada's role in international organization, Canada's position in Europe and the Commonwealth, the Third World, and the restraints and problems of foreign policy in the Canadian federal content. PROFESSOR METCALFE

160-343B. CONTEMPORARY INTERNATIONAL SYSTEMS: LATIN AMERICA. (3 credits. *Prerequisite:* 160-319D or consent of instructor.) An examination of the evolution of the inter-American system since the turn of the century. Particular attention will be given to the role of the United States in the dynamics of the system as illustrated by case studies including Cuba in 1959 and Santo Domingo in 1965. The role of Canada in the system will be studied with regard to the OAS and regional economic relations. PROFESSOR BRUNEAU

160-344A. CONTEMPORARY INTERNATIONAL SYSTEMS: EUROPE. (3 credits. *Prerequisite:* 160-244A or 160-245B or consent of instructor. 160-346A would be a helpful preparation for this course.) An examination of the evolution of the European system since 1945 focussing on three problem areas — East-West relations, the Atlantic Alliance and West European integration. Special attention will be paid to the politics of the U.S., Britain, France and West Germany. Part of the course will consist of a simulation dealing with current foreign policy problems in Europe. PROFESSOR NOBLE

160-346A. THE FOREIGN POLICIES OF THE SUPER POWERS. (3 credits. *Prerequisite:* 160-244A.) An analysis of American and Soviet foreign policies within the context of the major conceptual approaches to foreign policy behaviour. Special emphasis will be placed on the examination of similar patterns of behaviour, i.e. cold war politics, the arms race, hegemonial behaviour, etc., with a view to uncovering the major explanatory variables and comparing them. PROFESSOR STEINBERG

160-348B. CONTEMPORARY INTERNATIONAL SYSTEMS: THE MIDDLE EAST. (3 credits. *Prerequisite:* 160-244A or 160-245B or consent of instructor. 160-247B would be a helpful preparation for this course.) An examination of the evolution of the Middle Eastern system since 1945 focussing on three problem areas: Inter-Arab relations, Arab-Israeli relations, Arab-Great Power relations. Part of the course will consist of a simulation dealing with current foreign policy problems in the Middle East. PROFESSOR NOBLE

160-349B. CONTEMPORARY INTERNATIONAL SYSTEMS AND FOREIGN POLICY: ASIA. (3 credits.) A study of the foreign policies of the major Asian powers — China, Japan, India and Pakistan. Emphasis is on student research in the context of a common framework for the study of foreign policy. Focus is on foreign policy goals and behaviour and their relationship to economic and military capabilities, societal characteristics and governmental features. PROFESSOR NAYAR

160-363A. RADICAL POLITICAL THOUGHT (I). This course will focus on the origins and meaning of radicalism in the 19th century and trace its evolution in this period. A study of the impact of the French Revolution and the dislocations wrought by industrialization will provide background for a close examination of Marx and his Hegelian roots. A close look at anarchist theories and critiques will close the work of the first term. PROFESSOR SARF

160-364B. RADICAL POLITICAL THOUGHT (II). The transformations of Marxist and anarchist theory in response to new theoretical and practical problems in the 20th century is our major focus. Such thinkers as Lukacs, Gramsci, Marcuse and Habermas will be studied in depth. The rise of "new left" radicalism and its significance in the era of technology will be probed. PROFESSOR SARF

157-406B. CULTURE ET CONTRE-CULTURE AU QUEBEC. (3 crédits.) Quelles sont les origines et l'évolution récente de la culture traditionnelle au Québec? L'apparition de la contre-culture, ses protagonistes, son contenu. La contre-culture a-t-elle été récupérée par le système? La libération individuelle face à la libération collective. PROFESSEUR LATOUCHE

160-413A. CRITICAL POLITICAL SCIENCE. (3 credits.) The course will consider the state of the discipline of political science, the political behaviour of masses and elites and their respective roles in western democracies, the control and the political message of the mass media, and relationship of business to politics. Major political studies will be criticized and evaluated; alternative interpretations and explanations of data will be offered.
PROFESSOR VAILLANCOURT

160-415B. POLITICAL PARTIES. (3 credits. *Prerequisite:* One other course in Comparative Government.) The course will explore various approaches to and models of political parties and party systems, and apply them to party systems in different societies. Among the models to be considered are those of Maurice Duverger, R. Michels, Samuel Eldersveld, Anthony Downs, W. H. Riker, Seymour Lipset and Stein Rokkan.

160-416B. POLITICAL SOCIALIZATION. (3 credits. This course is offered in alternate years beginning 1973-74.) The following topics will be considered: 1) Theoretical approaches and conceptual frameworks; 2) the content and timing of political socialization; 3) agents and mechanisms of socialization; 4) role of early learning on later life behaviour; 5) approaches to the study of political leadership and elite socialization; 6) system level implications of political socialization; 7) problems and issues in the study of political socialization.
PROFESSOR VAILLANCOURT

160-417B. THE MILITARY AND POLITICS. (3 credits; *Prerequisite:* 160-211D or consent of the instructor. Not given 1973-74.) Identification and comparison of the political and socio-economic roles played by professional military establishments in both the relatively modernized and the relatively non-modernized societies. The course will focus on the dynamics and impact of the military-industrial complex in the United States and Canada and on the significance of military coups and the performance of military regimes for the process of political modernization. The contributions of Janowitz, Huntington, Pye, Johnson, Lee, Bienen and Hurewitz will be considered. PROFESSOR LATOUCHE

160-418A. ELITES AND POLITICS. (3 credits; *Prerequisite:* At least one course in Canadian or Comparative Government and Politics. Not given 1973-74; to be offered in 1974-75.) A critical examination of the major theoretical approaches to the study of elites (poltical, economic, intellectual, media, bureaucratic) and politics, and an evaluation of elite studies of Quebec, Canada, the United States, Britain, France, and other societies. Research into problems of elites in different societies will also be conducted. PROFESSOR M. STEIN

160-421B. PROBLEMS IN CANADIAN POLITICS AND GOVERNMENT. (3 credits. *Prerequisites:* 160-221D and 160-320A. Not given 1973-74.) This course will enable advanced students to deal with selected problems of Canadian political culture; constitutional development; and governmental structure. PROFESSORS MALLORY AND STEIN

160-422B. SEMINAR ON ASIAN POLITICS. (3 credits; Not given 1973-74.) Research-oriented seminar on key issues and major social and political forces in the major countries of Asia (South and East). PROFESSOR NAYAR

160-424B. PROBLEMS IN CONTEMPORARY POLITICS. (3 credits. Not given 1973-74.) Selected topics in the field of comparative politics are examined in detail. PROFESSOR SHINGLER

160-433A. HISTORY OF POLITICAL AND SOCIAL THEORY (III). (3 credits. *Prerequisite:* 160-231D.) This course will deal with the political theories which underlay the French revolution, and with those to which it gave rise. It will begin with a discussion of the theory of Enlightenment and with a closer study of Rousseau. It will then continue with an examination of different reactions to the Revolution: those of Burke, de Maistre, and later that of de Tocqueville. It will also examine the development of the themes launched by Rousseau and the French Revolution by the German Idealists, Kant, Fichte, Hegel. Finally, it will examine the revolutionary streams which rise in this period: Marx and Marxism, and anarchist thought. PROFESSOR TAYLOR

160-434B. HISTORY OF POLITICAL AND SOCIAL THEORY (IV). (3 credits. Recommended: 160-231D.) A consideration of selected writers and themes of late 19th and 20th century political theory. Such topics will include the theoretical foundations of scientism and technology, the existentialist revolt, the political ideas of Freud and other depth psychologists, the theoretical foundations of modern social science, elite theory and implications for democracy, and other themes in political and social theory. PROFESSOR TAYLOR

160-453A. THE HISTORY OF BRITISH CONSTITUTIONAL THOUGHT. (3 credits. *Prerequisite:* 160-231D.) A survey of the historical development of the British Constitution and the interpretation attendant upon its growth. Documents and writing to be studied include the Magna Carta, the Petition of Right, and the Bill of Rights, and the commentaries of Fortescue, Bracton, Coke, Selden, Blackstone, Burke, Bagehot and Dicey. PORFESSOR SHINGLER

160-454B. THE HISTORY OF BRITISH POLITICAL THOUGHT. (3 credits. *Prerequisite:* 160-453A.) An historical and textual examination of selected writers and themes in British social and political thought drawn from: the rise of Puritanism; Hooker, Harrington, Filmer; Bacon, Hobbes, Locke and Sydney; Shaftesbury, Bolingbroke, Swift and Pope; Godwin, Shelley and their circle; Edmund Burke; the Utilitarians; the Clapham Sect; and various 18th and 19th century literary figures including Cobbett, Hazlitt, Carlyle, Ruskin and Morris.
PROFESSOR SHINGLER

160-460B. POLITICAL IDEOLOGIES. (3 credits.) A study of the origins, content and functions of ideologies, and their relationship to political action and institutions, through a comparative survey of some of the major political ideologies in the modern world. PROFESSOR KUNZ

160-463A. POLITICS AND CONSCIOUSNESS. (3 credits; *Prerequisite:* One course in political philosophy. Not given 1973-74.) A survey of the relevance of existential philosophy and psychology for an understanding of the foundations of modern political and cultural consciousness. Themes such as social schizophrenia, identity, symbolism, primitivism, and modern

consciousness will be discussed. Such authors as Eliade, Laing, Foucault, Szasz, Merleau-Ponty, Sartre, and Heidegger will be explored for their relevance to political thought.
PROFESSOR SARF

160-465A. THE POLITICS OF PLANNING AND POLICY MAKING. (3 credits.) This course will take up: (1) cultural, ideological, political and organizational influences on policy-making; (2) problems in the logic of policy-making. Students will focus on a problem in policy-making in such areas as science, regional development, language, economics, management, etc.
PROFESSOR HASKEL

160-471A. THE ANALYSIS OF RAPID SOCIAL CHANGE. (3 credits. *Prerequisite:* For majors and honours students only, or consent of instructor.) This is a seminar in which various theories of revolution will be analyzed with reference to the empirical reality of revolutionary phenomenon. The course will follow a comparative perspective with the goal being evaluation of revolutionary explanation and an attempt to formulate alternative theories.
PROFESSOR BRUNEAU

160-478A. RECENT THEORY IN INTERNATIONAL RELATIONS: STATE BEHAVIOUR. (3 credits; *Prerequisite:* Consent of the instructor.) The seminar will explore representative theoretical and empirical studies which examine components of the foreign policy-making process. An attempt will be made to relate these components to foreign policy behaviour and to assess the utility and validity of alternative theoretical approaches. Students will be asked to prepare weekly evaluations of major articles in the field and will be responsible for three short essays dealing with major problem areas.
PROFESSOR STEINBERG

160-479A. INTERNATIONAL CONFLICT. (3 credits. *Prerequisite:* At least one course in International Relations beyond U1.) An examination of the literature dealing with international conflict. Topics to be covered include the sources of international conflict, bargaining, strategies and dynamics of conflict, crisis behaviour, and the management of international conflict.
PROFESSOR NOBLE

160-490A/160-491B. INDEPENDENT READING AND RESEARCH. (3 credits each.) Fourth year honours students wishing to pursue a specialized interest will be allowed to undertake a program of independent reading and/or research in that area under the supervision of a member of staff. Such programs may be undertaken by students either individually or in small groups. It is the responsibility of the student(s) to obtain the instructor's consent prior to registration.

160-494A. HONOURS SEMINAR IN INTERNATIONAL RELATIONS. (3 credits; *Prerequisite:* Consent of the instructor. Not given 1973-74.) Honours students in this seminar will evaluate advanced material in foreign policy relevant to problems discussed in the introductory course. They will also assist in the teaching functions of Political Science 244A and will write papers evaluating the substantive content presented in the seminar.
PROFESSOR J. STEIN

NOTE: U3 honours students with good records in Political Science are strongly encouraged to take First year graduate courses in their particular area of concentration. Those wishing to do so must receive permission from the course instructor. The courses available are as follows: 160-612B, 160-614A, 160-615B, 160-616A, 160-617B, 160-621A, 160-628A, 160-647A, 160-649A, 160-671B.

PSYCHOLOGY (204)

Stewart Biological Building, Room W8/1, Telephone 392-4708.

Psychology is the scientific study of man's mind and behaviour. It is both a social and biological science. As a social science, psychology studies man in his interactions with other members of his own species. As a biological science, it regards man as the product of evolution and so studies him in biological perspective, comparing and contrasting his behaviour with that of other species.

The data of psychology are collected within the psychological laboratory by the use of experimental methods in the study of behaviour, and outside the laboratory by systematic observation of the behaviour of man and lower animals. The combination of experimentation and observation results in a knowledge of man's behaviour as he perceives his world, learns, directs his behaviour towards certain goals, and reacts to stress, frustration, and other men. Experimentation, laboratory techniques, observational procedures, measurement, and statistical methods are important tools of the psychologist in the study of behaviour.

Psychology has many interdisciplinary aspects. The study of many psychological problems involves knowledge drawn from other disciplines such as biology, physiology, linguistics, sociology, philosophy, and mathematics. For this reason a student with varied interests can frequently find a place for these interests in psychology.

Psychology is a young science so that explanations of the processes underlying observed phenomena are often theoretical and speculative. The major objectives of psychological study are to reduce the discrepancy between theory and fact and to provide better answers about why man thinks and behaves as he does.

Although a number of undergraduate courses in psychology have applied implications, applied training is in no way the purpose of the undergraduate curriculum. The purpose of that curriculum is to introduce the student to an understanding of the basic core of psychological knowledge, theory, and method, regardless of questions of practical application.

The B.A. or B.Sc. with a Major or Honours degree in psychology is not a professional qualification. It does not qualify the individual to carry on professional work in psychology. In the Province of Quebec the minimum requirement for membership in the Corporation of Psychologists of the Province of Quebec, the professional association governing the work of psychologists in the Province, is an M.A. or M.Sc. degree, or other equivalent degree.

Although requirements for admission to graduate studies in psychology vary from one university to another, both the Honours and Major degrees in psychology may qualify the student for admission to many graduate schools, provided of course that sufficiently high marks are obtained.

The essential difference between the Honours and the Majors program is that higher standards are required of Honours students. Honours students also have an opportunity to work in small groups closely with staff members.

The Psychology Department offers 14 different options in its 54 credit programs. Except where otherwise stated, each of these programs may be taken as Major, Honours or Faculty programs. The differences between these three categories of programs are outlined below. The descriptions of the 13 options available in the B.A. program follow. See p. 143 for descriptions of the options available only in the B.A. program.

PREREQUISITES. It is expected that most students who major in psychology will have taken introductory psychology and statistics at the collegial level. In the First year all Major students must take General Experimental Psychology (204-210D) and Psychological Statistics (204-305A or B). Those students who have not taken a college level statistics course must also take Psychology 204-204A or B in addition to the other courses in their program.

A student who has not taken an introductory psychology course at the collegial level may major in psychology by taking Psychology 204-200D in their U1 year and also the courses in Psychological Statistics 204-204A or Band 204-305A or B. Such students should take General Experimental Psychology 204-210D in their U2 year concurrently with other U2 courses.

MAJOR PROGRAM. The following options are available in the Major program in Psychology:

1. General Psychology
2. General Experimental Psychology
3. Basic Human Experimental Psychology
4. General Human Experimental Psychology
5. Cognition and Thinking
6. Child Psychology
7. Personality and Abnormal Psychology
8. Human Communications Disorders
9. Social Psychology
10. Psycholinguistics
11. Psychology in Relation to Problems in Education
12. Major in Psychology & Philosophy
13. Quantitative Psychology

Call the main office of the Psychology Department (392-4708) or the chief adviser, Ms. Olga Favreau (392-4694) to obtain an adviser. In the First year of any of the above programs all Major students take Psychology 204-210D and 204-305B. Detailed descriptions of the programs will be found in section 3 below. Students majoring in Psychology must obtain a minimum grade of C in all 54 credits required by their program. A grade lower than C may be made up by taking another equivalent course (if there is one), by successfully repeating the course, or by successfully writing a supplemental examination (if there is one).

HONOURS PROGRAM. Honours in Psychology prepares students for graduate study, and so emphasizes practice in the research techniques which are used in graduate school and professionally later on. Honours students take Psychology 204-380D in the first year of their program, and they take Psychology 204-480D and 204-481D in the Second year. These courses have limited enrolments, and admission to Honours is selective. There is normally room for 30-35 new Honours students each year. Students with a cumulative grade point average of 2.8 (Arts) or 2.8 (Science), or better, are eligible to apply.

Students are normally accepted into Honours at the beginning of U2, and the two-year sequence of Honours courses continues through U3. Students who have had Introductory Psychology and Statistics at the institution preceding McGill, *who have an exceptional academic record,* and who apply for admission to Honours in U1 will be considered for acceptance. Failure to be admitted to Honours in U1 will not prejudice application for admission in U2.

Applications can be obtained from the general office of the Department of Psychology, Room W8/1, Stewart Building. The applications must be completed and returned to the general office by 1 September of the year for which admission to Honours is sought. Candidates will be advised of the department's decision by letter shortly after September 1. For information (other than application forms) about the Honours program, phone Don Donderi, Honours Committee Chairman, at 392-4693.

FACULTY PROGRAMS. A Faculty Program in Psychology is a sequence of courses which represents a lesser degree of specialization than a Major or an Honours program. A Faculty Program may be made up of any of the Major programs with the substitution of 6 credits from U2 Psychology courses for Psychology 204-211D and 204-305A or B. The Joint Program in Psychology and Mathematics is also a faculty program. For further details see program information at beginning of the Arts section.

PROGRAM DESCRIPTIONS. The courses in the program are ordered sequentially so that it will normally take three years to complete a program. The Major and Faculty Programs all include 18 credits in each of U1, U2, and U3. Students may, with the consent of their Faculty Adviser, substitute up to 6 credits in a program. Any further changes must be approved by the Associate Dean of the Faculty.

When selecting optional program courses from other departments, it is the student's responsibility to see that she or he has taken the appropriate prerequisites and/or obtained permission of the department where necessary.

None of the B.A. or B.Sc. programs provides professional training. They are all intended to give the student a general academic background in the interest area indicated by their titles. Those who are interested in practising psychology professionally must obtain graduate degrees at least at the Master's level, and should preferably continue on to the Ph.D. The Honours programs are most specifically designed to train students who intend to go to graduate school. However, it is important to remember that admission to graduate studies is highly competitive, and that no degree guarantees entry to advanced study. Students with a Major in Psychology may also, if they have chosen their courses appropriately and obtained high enough standing, be admitted to graduate studies, although they may sometimes be required to complete a qualifying year. Students in Faculty programs who decide to go into graduate study in psychology will most probably have to complete a qualifying year first. Further information about advanced study in Psychology may be obtained from the American Psychological Association's Handbook on the topic. It is usually on sale in the University Bookstore.

Courses in the Faculty of Management

The Faculty of Management offers the following courses in the Behavioural Sciences: 280-221A, Behavioural Science I (3 credits); 280-222B, Behavioural Science II (3 credits); 272-420A, Group Dynamics and Interpersonal Relations (3 credits); 272-421B, Strategies of Management and Organization Development (3 credits); 275-458A, Consumer Behaviour (3 credits); 275-495A, Marketing Research (3 credits).

Where appropriate to a student's program, and with the permission of the program adviser, one or more of these courses may be taken for credit by students enrolled in programs in psychology. Programs in such fields as personnel management, administrative behaviour, and consumer behaviour are also available to students through a cooperative arrangement between the Faculty of Management and the Department of Psychology.

Graduate Study

Students planning to work for a graduate degree in Psychology are advised to include Psychology 204-300A, 301B, 302A, 303B, 400D and 450D among their courses. The adviser to Major students will, whenever possible, assist students in planning their courses to coincide with their professional aims. Most graduate schools require not only a record of high achievement, but also adequate performance on some entrance examinations such as the Graduate Record Examination and the Miller Analogies Test, as well as letters of recommandation.

Major Program

GENERAL PSYCHOLOGY OPTION

This option is intended to give maximum flexibility to the students in designing their own programs. In this 54 credit option at least 36 credits must be in psychology courses. These later must include Psychology 204-210D and 204-305A or B as well as 12 credits in U3 Psychology courses. If fewer than 54 credits in psychology are taken, then the difference between that number and 54 must be made up by selecting certain courses in other departments from the following list (students are warned that the list may not be up to date in September 1973; the relevant department should be consulted before choosing).

Anatomy 504-412B; Anthropology 151-E21A; E22B; 205A; 206B; 228A; 303B; 310B; 312B; 314A; 316A; 321B; 404B; 428B; Biochemistry 507-455B; Biology 177-E10D; E27A; 201D; 205D; 303A; 305A; 325A; 326B; 349D; 352D; 370B; 372B; 385A; 386D; 391A; 392B; 394B; 471B; 488B; 493B; Computer Science 308-220A or B; Geography 183-214A; 215B; 217B; 300B; Linguistics 104-200A or B; 201D; 230A; 241B; 321B; Mathematics 189-217A; 218B; 223A; 245A,B; 314A,B; 317A; 318A; 323A; 324B; 327B; 328B; 417A; 423A; 424B; Philosophy 107-210A; 211B; 313D; 321A; 410D; 417D; 420D; Physiology 522-201A; 202B; 211D; Sociology 166-E21A or E22A or E23A and E42B or E44B or E45B; 222B; 223A; 227A; 247B; 309A; 404B; 407A; 439B.

GENERAL EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 305A,B; plus 9 credits from U2 psychology courses which are open to U1 students.

U2 Courses: Psychology 204-300A; 301B; plus 12 credits to be selected from Psychology 204-302A; 303B; 304D; 308D; 309B; 310D; 330A; 331B; 335A; 336B.

U3 Courses: Psychology 204-400D plus 12 credits to be selected from the list of U2 options above.

BASIC HUMAN EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 211D; 305A,B; plus 6 credits from U2 psychology courses which are open to U1 students.

U2 Courses: Psychology 204-300A; 301B; 302A; 303B; plus 6 credits to be selected from: Psychology 204-307D; 310D; 335A.

U3 Courses: Psychology 204-400D; 401D; plus 6 credits to be selected from: Psychology 204-403A; 404B; 425A; 430B.

GENERAL HUMAN EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 211D; 305A,B; plus 6 credits from U2 psychology courses that are open to U1 students.

U2 Courses: Psychology 204-300A; 301B; 302A; 303B; plus 6 credits chosen from among other U2 psychology courses.

U3 Courses: Psychology 204-400D; plus 6 or 9 credits to be selected from: Psychology 204-401D; 403B; 404B; 415D; 425A; 430B. The balance of 18 credits to be selected from among U2 and U3 courses.

COGNITION AND THINKING OPTION

U1 Courses: Psychology 204-210D; 211D; 305A,B; plus 6 credits to be selected from: Mathematics 189-245A,B; Computer Science 308-200A,B; 210A,B; Philosophy 107-210A; Linguistics 104-200A,B.

U2 Courses: Psychology 204-302A; 303B; 340A; plus 9 credits to be selected from: Psychology 204-335A; 336B; 304D; 301B; 310D; Anthropology 151-E22B; Mathematics 189-328B. Up to 6 credits from the optional U1 courses listed in this program if not already taken.

U3 Courses: Psychology 204-410D; plus 12 credits from: Psychology 204-400D; 403B; 404B; 410D; 425A; 431B; 451D; 452D; 456D; 450D; Linguistics 104-321B; 480A. Up to 6 credits from the optional courses of U1 or U2 listed in this program if not already taken.

CHILD PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 211D; 305A,B; plus 6 credits to be selected from Sociology, Geography, Anthropology or Biology.

U2 Courses: Psychology 204-304D; plus 9 credits to be selected from: Psychology 204-300A; 301B; 302A; 303B; 309B; 310D; 330A; 331B; 332A; 337A; 338B; 340A; 341B; plus 3 credits to be selected from courses in Biology, Geography, Anthropology or Sociology.

U3 Courses: Psychology 204-410D; plus 9 credits to be selected from: Psychology 204-400D; 401D; 404B; 406B; 408A; 411D; 412A; 415D; 425A; 430B; 451D; 456D; 458D; plus 3 credits to be selected from courses in Anthropology, Geography, Biology or Sociology.

PERSONALITY AND ABNORMAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 305A,B; plus 9 credits to be selected from: Biology 177-205D; Sociology 166-E21A or E22A or E23A and 166-E42B or E44B or E45B; 166-217A; Geography 183-214A; 215B; Anthropology 151-314A; 206B; 228A; 310B; 312B; Psychology 204-211D.

U2 Courses: Psychology 204-337A; 338B; plus 12 credits to be selected from: Psychology 204-300A; 301B; 302A; 303B; 340D; 308D; 309B; 332A; 404B; Biology 177-370B; Physiology 552-211D; 201A; Philosophy 107-301A; 302B; Sociology 166-309A; 227A; 228A; 247A.

U3 Courses. Psychology 204-491D; 408A; plus 9 credits to be selected from: Psychology 204-310D; 400D; 405B; 412A; 433B; 458B; 456D.

HUMAN COMMUNICATION DISORDERS OPTION

U1 Courses: Psychology 204-210D; 211D; 305A,B; 214D.

U2 Courses: Linguistics 104-201D; Psychology 204-300A; 337A; plus 6 credits to be selected from Psychology 204-303B; 340A; 308D; 301B; 302A; 341B; 304D; 310D; 404B.

U3 Courses: Psychology 204-408A; Linguistics 104-350A; 315B; plus 9 credits to be selected from: Psychology 204-303B; 340A; 308D; 301B; 302A; 341B; 304D; 310D; 404B.

SOCIAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 305A,B; plus 9 credits to be selected from: Sociology 166-217A; 227A; 230B; Anthropology 151-314B; Psychology 204-211D.

U2 Courses: Psychology 204-330A; 331B; plus 12 credits to be selected from: Psychology 204-304D; 307D; 310D; 336B; 340A; 341B.

U3 Courses: Psychology 204-411D; plus 12 credits to be selected from: Psychology 204-400D; 403B; 405B; 409D; 425A; 431B; 451D; 456D.

PSYCHOLINGUISTICS OPTION

U1 Courses: Psychology 204-210D; 305A,B; Linguistics 104-201D; plus 3 credits to be selected from: Linguistics 104-230A; 241B; Philosophy 107-210A; 211B.

U2 Courses: Psychology 204-340A; 341B; Linguistics 104-350A; plus 9 credits to be selected from Psychology 204-301B; 302A; 303B; 214D; Linguistics 104-351B; 481B; Philosophy 107-313D.

U3 Courses: Psychology 204-425A; 455D; Linguistics 104-360A; 361B; plus 3 credits to be selected from: Psychology 204-401D; 404B; 406B; Linguistics 104-400A; 461B; 480A; Philosophy 107-417D; Anthropology 151-440B; Sociology 166-217A; Mathematics 189-489A; 490B.

PSYCHOLOGY IN RELATION TO PROBLEMS IN EDUCATION

U1 Courses: Psychology 204-210D; 305A,B; Anthropology 151-228A; plus 6 credits from U2 Psychology courses which are open to U2 students.

U2 Courses: Psychology 204-301B; 304D; plus 9 credits from: Psychology 204-302A; 303B; 310D; 330A; 332A; 337A; 341B; Sociology 166-422A; Anthropology 151-428B.

U3 Courses: Psychology 204-406B; Education 413-402D; plus 9 credits to be selected from: Psychology 204-410D; 451D; 452D; 408A; 456D; 415D; or any U2 course not yet taken.

JOINT MAJOR IN PHILOSOPHY AND PSYCHOLOGY

U1 Courses: Psychology 204-210D; 305A,B; Philosophy 107-200D; plus 6 credits to be selected from: Philosophy 107-340D; 341D; Psychology 204-211D; Philosophy 107-210A.

U2 Courses: Philosophy 107-301A; 302B; Psychology 204-302A; 303B; plus 6 credits to be selected from: Philosophy 107-350D; 351D; 313D; Psychology 204-340A; 301B; 337A; 330A; 332A.

U3 Courses: Philosophy 107-321A; 494B (Psychology 204-431B); Psychology 304-400D; plus 6 credits to be selected from: Philosophy 107-493A; Psychology 204-425A; 404B; 401D; 403B.

QUANTITATIVE PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; Mathematics 189-222A,B; 245A,B; Computing Science 308-200A,B, or 220A,B.

U2 Courses: Psychology 204-302A; 303B; Mathematics 189-323A; 324B; plus 3 credits to be selected from: Mathematics 189-314A,B; 317A; 327B; 328B; plus 6 credits selected from Psychology non-statistics courses.

U3 Courses: Psychology 204-335A; 336B; Mathematics 189-423A; 424B; plus 3 credits selected from the U2 mathematics optional course list or from: Mathematics 189-417A; 447B; plus 6 credits selected from Psychology non-statistics courses.

NOTE: For course descriptions, see page 227.

RELIGIOUS STUDIES (260)

William and Henry Birks Building, 3520 University Street.

For general information, Major and Honours programs, consult Professor Stevenson, Room 108, phone 392-4835. For specific course information consult the instructor.

Courses are offered to students in other Faculties and Schools in the University through the Faculty of Religious Studies. The Major in Religious Studies can lead to teaching, social work, professional religious service, and graduate study in religion or theology. Religious Studies courses may be usefully combined with other concentrations, e.g. Art History, Classics, Jewish Studies, History, Philosophy.

Major in Religious Studies

A Major in Religious Studies consists of 54 credits as follows:

1) At least 36 credits are to be chosen from the Religious Studies courses described below. Students must choose at least one full course (6 credits) in a tradition other than their own.
2) Up to 18 credits to be chosen from approved Related Courses. Students taking such courses must fulfil any requirements (prerequisites, grades, etc.) laid down by the department concerned.

RELATED COURSES include the following (others might be considered appropriate, depending upon content and the student's interest and qualifications; course numbers may vary from year to year):

ANTHROPOLOGY	151-209B, 303B.
ART HISTORY	123-211A, 212B, 312A, 313B, 344B, 414D.
CLASSICS	114-203A, 302D, 473A, 474B.
EDUCATION	(See Faculty of Ed. announcement. Elementary Education, Catholic Studies).
ENGLISH	120-347A, 348B, 382A, 383B.
HISTORY	101-206D, 207D, 208D, 280D, 314D, 317D, 325D, 336D, 405D, 442B, 448B, 477D, 479D.
ITALIAN	132-325A.
JEWISH STUDIES	135-301D, 309D, 311D, 343D, 345D, 401D, 403D, 421D.
MUSIC	211-180D, 316A, 317B.
PHILOSOPHY	107-301D, 332D, 341B, 404D, 431A, 448A, 452D.

Major students must consult with Professor Stevenson prior to registration.

INTERDISCIPLINARY MAJOR programs may be arranged in consultation with the Adviser. Joint programs are in operation between Religious Studies and Classics, Philosophy and Art History.

Major students may also choose their electives from the B.Th. program (Faculty of Religious Studies Calendar), after consultation with the Adviser. In special cases, permission may be given for admittance to graduate seminars in the Faculty of Religious Studies.

Honours in Religious Studies

The Faculty is in the process of preparing this program. Please consult Professor Stevenson for latest information.

Joint Honours in Religious Studies

See previous paragraph.

Course Descriptions

260-114D. HISTORY OF RELIGION. (6 Credits.) An introduction to the Buddhist, Christian, Hindu, Jewish and Muslim religious traditions. PROFESSOR STEVENSON AND STAFF

260-200D. RELIGIOUS TRADITIONS OF THE ANCIENT NEAR EAST. (6 Credits.) The Religion of Ancient Israel in the setting of the Ancient Near East: a brief consideration of religion in general, its origin, nature and study; other religions of the Ancient Near East, e.g. those of Egypt and Mesopotamia; the Religion of Ancient Israel. PROFESSOR RUNNALLS

260-280D. NEW TESTAMENT GREEK. (6 Credits.) An introduction to the language. STAFF

260-300A. POST-BIBLICAL JEWISH TRADITION. (3 Credits.) The origins of Rabbinic Judaism: a survey of Jewish history and thought from Ezra to the Tannaim; oral tradition; Torah interpretation in the Mishnah and Midrashim. PROFESSOR RUNNALLS

260-301B. POST-BIBLICAL JEWISH TRADITION. (3 Credits; *Prerequisite:* Religion 300A or the consent of the instructor.) The religion and literature of sectarian groupings: Apocalyptic thought; Wisdom; Dead Sea Scrolls; Josephus. PROFESSOR RUNNALLS

260-310D. THE NEW TESTAMENT — ITS MAKING AND MEANING. (6 Credits.) The beginnings of the Christian Movement; the mission and achievement of Jesus. Early Christian Missions and the growth of institutions. Religion 200D is a desirable but not mandatory previous course. PROFESSOR JOHNSTON

260-320D. A HISTORY OF CHRISTIAN THOUGHT. (6 Credits.) A survey of the development of Christian thought from the post-apostolic period to the present day, in relation to the concurrent cultural and philosophical movements. The work of prominent Christian thinkers, ancient, mediaeval and modern, will receive special attention. PROFESSOR JAY

260-322A. THE ANCIENT CATHOLIC CHURCH (TO AD 325). (3 Credits; Not offered in 1973-74.) An historical introduction to the emergence of the Christian Tradition as catholic and orthodox, its conflict with the Roman Imperial State, and the development of Christian missions and institutions. This half-course ends with the first Ecumenical Council at Nicaea (AD 325), and it is normally to be taken as a prerequisite to 260-323B. PROFESSOR JOHNSTON

260-323B. THE ANCIENT CATHOLIC CHURCH (AD 325-604). (3 Credits; Not offered in 1973-74.) The history of the Imperial State Church from Constantine I to Justinian the Great; the rise of the Papacy (to Gregory I); the theological controversies, monasticism, the inner life of the Church, liturgy, and Byzantine Art. The emphasis will be on the growth of a Christian culture and the tensions which prepared the way for Islam in North Africa and the East, and for the Dark Ages in the West. PROFESSOR JOHNSTON

260-340B. RELIGION AND THE SCIENCES. (3 Credits.) Modern philosophy of science and of religion have created a more positive dialogue on questions of method, symbolism and rationality. We examine key issues (e.g. creation and evolution; objectivity and involvement; determinism and freedom) raised by natural and social sciences and various possible solutions. PROFESSOR McLELLAND

260-345A. RELIGION AND THE ARTS. Studies in relationships between religious symbolism and aesthetic forms. Literary criticism will provide an approach to comparative analysis of art forms as conveyors of images of man, critics of social types and forms of ultimate concern. PROFESSOR McLELLAND

260-361A. RELIGIOUS BEHAVIOUR: AN INTRODUCTORY STUDY. (3 Credits.) Through a study of significant aspects of religious life, contemporary religious phenomena, religious growth and the religious personality as well as the psychological attack on religion, the course examines criteria for good religion and bad to estimate the meanings and functions of religion in personal life. PROFESSOR PEASTON

260-370A. THE HUMAN CONDITION. (3 Credits.) A critical examination of representative theories about man, his situation and his values in the light of traditional interpretations of Christian anthropology and ethics, together with an attempt to formulate some contemporary clues in response to man's search for meaning. PROFESSOR BOORMAN

260-380D. ADVANCED NEW TESTAMENT GREEK. (6 Credits.) Advanced course in the language. STAFF

260-390D. HEBREW LANGUAGE. (6 Credits.) Introduction to the language. PROFESSOR RUNNALLS

260-440D. RELIGION AND THE MODERN MIND. (6 Credits; Not offered in 1973-74.) Three main questions: What is religion? How are faith and reason related? What is man's nature and destiny? are discussed in terms of such contemporary issues as materialism, atheism, the role of intellectual and artist, the future man. PROFESSOR McLELLAND

260-450D. THE ISLAMIC TRADITION. (6 Credits.) The Islamic Community and the elements of its tradition — Scripture, prophet, doctrine, practices, institutions — considered historically and in terms of religious meaning. PROFESSOR ADAMS

260-451D. THE HINDU AND BUDDHIST TRADITIONS. (6 Credits.) An introduction to the Hindu and Buddhist religious traditions, their history, faith and practice. PROFESSOR STEVENSON

260-490D. HEBREW TEXTS. (6 Credits.) Advanced course in the language. PROFESSOR CULLEY

260-496A. RESEARCH SEMINAR. (3 Credits.) Topics to be arranged for Major students. STAFF

260-497B. Topics to be arranged for Major students. STAFF

260-498B. SPECIAL STUDIES. (3 Credits.) Topics to be arranged. Reading and research for Major students. STAFF

260-499A. SPECIAL STUDIES. (3 Credits.) Topics to be arranged. Reading and research for Major students. STAFF

Languages

Students taking an introductory language course in this program are required subsequently to take the more advanced course in order to obtain credit for both.

Instruction in the languages of some other religious traditions (such as Arabic, Ancient Egyptian, Sanskrit) may be available in any given year. Ask the Adviser for further information.

RUSSIAN AND SLAVIC STUDIES (141)

Samuel Bronfman Building, Room 660, Telephone 392-4610 or 392-4616.

Many opportunities are open to students with qualifications in Russian and other Slavic studies. Students may be interested in the organization of human society, comparative literature, linguistics. Russian studies are highly relevant to all of these. In addition, because of similar problems in geography, climate, industrial and economic growth Russian studies may have a particular fascination for the Canadian student.

Major Program

The Major program consists of at least 54 credits (9 courses) taken during the university years (of which at least 7 must be in Russian), preferably twelve credits in U-1, twelve in U-2 and 18 credits in U-3. Various sequences of courses are possible but close consultation with the Department and approval of proposed sequences is essential. Please consult the office at 392-4610 or 392-4616 and say you need information on the Major program. Admission is based on personal interviews to establish how much Russian has been taken previously, if any, and to work out a reasonable program for the individual.

Honours Program

The Department offers a full Honours program in Russian. Single Honours in Russian require at least 10 courses (60 credits) in Russian to be taken during the three university years out of a total of 15 required courses (90 credits). In addition, at least a second class average (B) must be obtained. All Honours programs require consideration and approval by the Department. Normally 200 level courses are taken in U-1, 300 level in U-2 and 400 level courses in U-3. However, many exceptions may occur depending on students' abilities. Telephone 392-4610 or 392-4616 and mention you are interested in Honours in Russian.

Joint Honours Programs

The Department also offers Joint Honours programs in cooperation with the Departments of French, Geography, German, History, Italian, Linguistics, Political Science, Spanish. These programs also require a total of 15 courses (90 credits) with a B average over the three university years. Two courses (12 credits) in Russian and two (12 credits) in the cooperating Department are normally taken each year. As in Single Honours and Majors all programs require consideration and approval by the Departments involved. For information telephone 392-4610 or 392-4616 and mention you are interested in the Joint Honours program.

Course Descriptions

141-210D. RUSSIAN LANGUAGE. (6 Credits; *Text:* Clayton L. Dawson, *Modern Russian,* Book 1, Harcourt, Brace and World Inc.) Reading, grammar, translation, oral practice. STAFF

141-212D. RUSSIAN READING COURSE. (6 Credits.) Method and practice of translation. The first half of the course will be devoted to an introduction to Russian, the second half to actual translation of texts from various fields of interest. This course is intended for students wishing to learn to read Russian easily. STAFF

141-215D. RUSSIAN LANGUAGE. (6 Credits; *Prerequisite:* Permission of the Department. Registration limited. This is an accelerated Beginners' Course for students who desire voluntarily to take six hours' instruction n order to learn more quickly. It carries credit for one course only. Students may, at the discretion of the Department, revert to Russian 210D after two months at the latest.) Thorough study of grammar with intensive practice to ensure greater precision and fluency. Use of readers to introduce topical material, extensive discussion in Russian; stress on aural comprehension. PROFESSOR BAUER AND STAFF

141-217B. ACCELERATED INTRODUCTION TO RUSSIAN STUDIES. (3 Credits; *Prerequisite:* Evidence of ability in modern or classical languages and Departmental permission.) This course is intended for the student who has already shown merit in modern or classical languages, and who wants to obtain a good knowledge of Russian language, literature and civilization in a short time. Successful completion of this course will normally admit to the higher level courses in Russian at McGill. PROFESSOR AUSTIN AND STAFF

141-218A. SOVIET LITERATURE (UP TO WORLD WAR II). (3 Credits; *Prerequisite:* None.) The social conditions leading to the creation of post-revolutionary literature. What does the West understand by "socialist realism" and what does this term mean in Russia? The period of different literary schools in Soviet literature and the organization of the Writers' Union. Specific features of the literature of the thirties. This course will be conducted in English.
STAFF

141-219B. SOVIET LITERATURE (AFTER WORLD WAR II). (3 Credits; *Prerequisite:* None.) The impact of World War II on Soviet literature. Post-war changes in official literary policy; "Zhdanovism." The period of "thaw," and debates on the principles of creative freedom. The three Nobel prize winners. The emergence of young writers with new voices. This course will be conducted in English.
STAFF

141-220D. RUSSIAN LANGUAGE. (6 Credits; *Prerequisite:* Russian 210D or equivalent; *Text:* Clayton L. Dawson, *Modern Russian,* Book II: Harcourt, Brace and World, Inc.). Reading, translation, conversation.
STAFF

141-222D. RUSSIAN CIVILIZATION IN THE TWENTIETH CENTURY. (6 Credits; *Prerequisites:* Russian 210D or equivalent and permission of the Department.) This is a general introduction to the changing relationships between Russian language, literature, thought and culture in the twentieth century. It will be conducted to some extent in Russian.
PROFESSOR AUSTIN AND STAFF

141-223A. RUSSIAN WRITERS OF THE 19TH CENTURY. (3 Credits; *Prerequisite:* None.) The course, to be given in English, is designed for students interested in Russian Literature and its authors. The course will offer students a broad overview acquainting them with the main Russian literary currents of the 19th century and with the lives and destinies of its writers.
STAFF

141-224B. THE RUSSIAN WRITER OF THE TWENTIETH CENTURY. (3 Credits; *Prerequisite:* None.) This course, given in English, examines the rôle of the creative writer in the conditions of the Russian reality of the twentieth century. Special emphasis is laid on factors affecting the writer's art as well as on the writer's own reflections upon his craft. PROFESSOR AUSTIN

141-225D. RUSSIAN LANGUAGE. (Continuation of Russian 215D.) (6 Credits; *Prerequisite:* Russian 215D or equivalent. Registration limited.) Students completing it will have a good working knowledge and appreciation of the language and will be able to go directly into advanced courses in Russian language and literature. PROFESSOR BAUER AND STAFF

141-226D. OUTLINES OF 19TH CENTURY RUSSIAN LITERATURE. (6 Credits; *Prerequisites:* Russian 215D or equivalent, and the permission of the Department; *Texts:* Mirsky, *History of Russian Literature:* Knopf; Slonim, *Outlines of Russian Literature:* Oxford; Other prescribed texts to be selected.) A general introduction to Russian prose, poetry and drama in the 19th Century. Selected texts will be read in the original and discussed. The course will be conducted to some extent in Russian.
STAFF

141-227D. INTRODUCTION TO SOVIET RUSSIAN LITERATURE. (6 Credits; *Prerequisites:* Russian 215D or equivalent, and the permission of the Department; *Texts:* Reddaway (ed.), *Soviet Short Stories.* Vol. 2, Harper et al., editors, *New Voices;* Other prescribed texts to be selected.) Selected texts will be read in the original and discussed. The course will be conducted mainly in Russian.
PROFESSOR AUSTIN

141-235D. INTRODUCTION TO RUSSIAN STUDIES. (6 Credits; *Prerequisite:* Permission of the Department.) An introduction to the study of Russian civilization with emphasis on the Russian language as a vehicle of culture, on the literature of the 19th century, on Soviet literature, on the role of the author in Russian society, on literary censorship in the 19th and 20th centuries.
PROFESSOR NICHOLSON AND STAFF

141-240D. INTRODUCTION TO UKRAINIAN STUDIES. (6 Credits; *Prerequisite:* Permission of the Department.) An introduction to the study of Ukrainian civilization with emphasis on the position of Ukrainian as an Eastern Slavic language with an ancient culture, on the literature of the 19th and 20th centuries, and on the role of the Ukrainian writer in his society.
DR. ROMAN OLYNYK

141-245D. INTRODUCTION TO BULGARIAN STUDIES. (6 Credits; *Prerequisite:* Permission of the Department.) An introduction to the study of Bulgarian civilization. Emphasis will be laid on Bulgarian as a development of the Slavs' first literary language, on Bulgarian literature from the earliest times and on the role of the Bulgarian writer in his society.
PROFESSOR LE GUILLOU

141-255D. INTRODUCTION TO POLISH STUDIES. (6 Credits; *Prerequisite:* Permission of the Department.) An introduction to the study of Polish civilization, with emphasis on the Polish as a Western Slavic language, on Polish literature of the 19th and 20th centuries particularly, and on the role of the Polish writer in his society. MR. G. ADRIANOW AND STAFF

141-300D. RUSSIAN LANGUAGE AND LITERATURE IN THE 19TH CENTURY. (6 Credits; *Prerequisites:* Russian 220D or equivalent and permission of the Department.) Grammar. Readings

from selected authors, conversation and composition. The course will be conducted in Russian. PROFESSOR PAVILANIS

141-320D. RUSSIAN CIVILIZATION IN THE NINETEENTH CENTURY. (6 Credits; *Prerequisites:* Russian 220D, 222D or equivalent and permission of the Department.) This course, given in Russian, discusses the relationship between Russian language, literature, thought and culture from Karamzin to Chekhov. PROFESSOR PAVILANIS

141-350D. ADVANCED RUSSIAN LANGUAGE AND SYNTAX. (6 Credits; *Prerequisites:* Russian 225D or equivalent, and permission of the Department.) Prose composition, translation, essay writing. An introduction to Russian stylistics. PROFESSOR AUSTIN

141-355D. RUSSIAN COMPARATIVE GRAMMAR. (6 Credits; *Prerequisites:* Russian 225D or equivalent and permission of the Department.) This course, given principally in Russian, will discuss Russian structurally from the viewpoint of the non-Russian student. Each student will prepare at least one original paper to be discussed in class. PROFESSOR NICHOLSON

141-360D. THE RUSSIAN NOVEL FROM 1820 TO 1860. (6 Credits; *Prerequisites:* Russian 225D or equivalent, and permission of the Department.) The development of the Russian novel before Tolstoy, and Dostoevsky. Reading texts will be chosen from the prose works of Pushkin, Lermontov, Gogol', Turgenev and Goncharov. This course will be conducted in Russian. PROFESSOR AUSTIN

141-370D. PUSHKIN AND HIS CONTEMPORARIES. (6 Credits; *Prerequisites:* Russian 225D or equivalent and permission of the Department.) The Golden Age of Russian poetry. The course will be conducted in Russian. STAFF

141-400D. RUSSIAN LANGUAGE AND LITERATURE AFTER 1917. (6 Credits; *Prerequisite:* Russian 300D or permission of the Department.) The development of the Russian novel and language after the October Revolution. The course will be conducted in Russian. STAFF

141-410D. DRAMA IN RUSSIAN LITERATURE. (6 Credits; *Prerequisite:* Permission of the Department.) Representative works of the 19th and 20th centuries are studied and discussed. Reading texts will be chosen from the plays of Fonvizin, Griboedov, Pushkin, Gogol', A. Ostrovsky, Turgenev, Chekhov, Gor'ky and Kataev. The course will be conducted in Russian. STAFF

141-420D. RUSSIAN CIVILIZATION OF THE EARLIER PERIOD. (6 Credits; *Prerequisite:* Permission of the Department.) This course, given in Russian, discusses the development of Russian culture from the earliest times to the death of Catherine the Great. STAFF

141-450D. TWENTIETH CENTURY RUSSIAN LANGUAGE AND LITERATURE. (6 Credits; *Prerequisites:* Russian 350D or equivalent and permission of the Department.) Specific features of the style of modern literary Russian will be analysed and compared with the language of the 19th century. The origins and development of Soviet Russian literature will be studied in detail. The course is primarily intended for Honours students. It will be conducted in Russian. STAFF

141-460D. THE RUSSIAN NOVEL FROM 1860 TO 1900. (6 Credits; *Prerequisites:* Russian 350D or equivalent and permission of the Department.) The Golden Age of the novel in Russian literature. The major works of Turgenev, Dostoevsky and Tolstoy will be read in the original and discussed in Russian. STAFF

141 GRADUATE COURSES. Certain graduate courses may be open to U-2 and U-3 students. Consult the Graduate calendar and the Department.

SCHOOL OF SOCIAL WORK (407)

3506 University Street, Telephone 392-5040

Bachelor of Social Work Degree (B.S.W.)

EDUCATIONAL OBJECTIVES

The Faculty of Arts, through the McGill University School of Sccial Work, offers an undergraduate program of professional studies in Social Work, leading to the Degree of Bachelor of Social Work (B.S.W.). The B.S.W. degree course has the following principal educational objectives:

1) To prepare students for professional practice in any one of a range of social service positions. (Holding of the B.S.W. degree represents the point of admission into the Corporation of Professional Social Workers of the Province of Quebec and the Canadian Association of Social Workers.)

2) To prepare selected students for entry into more specialized professional studies at the graduate level.

ADMISSION

Admission to the B.S.W. is open to two groups of applicants: a) those who have completed two years of collegiate or equivalent studies, including introductory courses in Sociology, Psychology and French, as recognized by the University Admissions Office, and b) those who hold a B.A. at a B level average, with substantial content in social and behavioural sciences. Both groups should also have had introductory courses in statistics.

Application for admission should be made at the University Admissions Office.

PLAN OF STUDY

a) The regular B.S.W. comprises a combination, over the three years, of professional courses, supervised field practice and practice-related courses drawn principally from the social and psychological sciences.

b) The program is organized so that the proportion of professional content to social and psychological science content increases from year I to year III.

c) The B.S.W. degree will be awarded upon successful completion of 90 credits of study, distributed approximately as follows:

Social Work courses, 33-39 credits

Field practice, 15 credits

Other University courses (at least 24 to 30 credits of which will be selected from social and psychological science offerings) to a total of 36 to 42 credits

d) The distribution of the 48 to 54 credits of Social Work content over the three years will be approximately as follows:

Year I — 9 credits

Year II — 18 to 21 credits

Year III — 21 to 24 credits

e) Students entering their University I year will enrol in Social Work 250A and Social Work 251B having a combined course value of 9 credits. The remaining 21 course credits will be taken elsewhere in the University with the approval of the Director of the School of Social Work.

f) Students entering B.S.W. II will, in consultation with advisers, enrol in Social Work courses having a total credit value of 18 to 21 normally including Social Work 455D and Social Work 456D in their registration. The remaining credits will be taken elsewhere in the University.

g) Students entering B.S.W. III will enrol in Social Work courses having a total credit of 21 or 24, including 480D and at least two of the courses numbered 472A through 479B. The remaining 6 to 9 credits will be taken elsewhere in the University.

h) The Special B.S.W. for holders of a B.A. will be offered in three time blocks: a pre-summer session of 6 weeks, May-June, one regular academic year, and a summer session of 12 weeks, April-May-June. Students in this program will take at least 48 credits, including courses in social work practice, field practice, and policy. Required courses are Social Work 250A, 251B, 352B, 455D and 456D, 458B, 480D, and at least two of the courses numbered 472A to 479B. The remaining 12 credits will be selected from other courses offered at the B.S.W. level.

Course Descriptions

407-250A. SOCIAL WELFARE PROBLEMS, POLICIES AND ORGANIZATIONS. (4 Credits; 3 hours per week of classes, 2 hours per week laboratory.) An examination of major social problems associated with life in large urban areas, and the social services, both public and private which have been established to deal with such problems. Each student will be expected to examine in some depth the services associated with one selected problem area, and to make an assessment of their appropriateness and effectiveness in dealing with the problem. Specific problems to be examined include: urban poverty, child neglect, marital and family conflict, housing, illegitimacy. The course includes field observations and analysis of welfare organizations. PROFESSOR DEEHY

407-251B. INTRODUCTION TO SOCIAL WORK PRACTICE THEORY. (5 Credits; 3 hours per week of class, 3 hours per week of field work.) An examination of helping or change techniques including the theoretical definitions of personal or social change from which they are derived. Planned change with individuals, families, small groups and communities. Topics will include: the nature of helping relationships, phases of the change process, motivational forces for change, resistance, client-systems, establishing change goals, evaluation of outcomes. One half day per week of field observation forms a part of the course requirement.
PROFESSOR KATZ

407-352B. THE SOCIAL SERVICES IN CANADA. (3 Credits.) An introduction to the structure and programs of social services in Canada designed to familiarize students with these services and to increase their ability to evaluate the functions of the services. PROFESSOR McGILLY

407-451A, B. CHILDREN'S NEEDS AND SOCIAL SERVICES. (3 Credits.) The identification and analysis of the needs of children and their families. Consideration of the processes of selected social services, e.g. day care, visiting homemakers, foster family and institutional care adoption, etc., designed to support, supplement and substitute for the family. Special emphasis will be placed on social legislation related to neglected, abused and dependent children.
MEMBERS OF STAFF

407-352A, B. SOCIAL WELFARE ORGANIZATIONS AND DISADVANTAGED CLIENTELE. (3 Credits.) An examination of the structure of organizations serving the needs of socially disadvantaged persons or groups, and the processes through which such services are provided. Particular attention will be paid to the definition, screening and serving of disadvantaged clients as compared to those drawn from more "privileged" groups in society. Strategies for changing such organizations will be explored. PROFESSOR DEEHY

407-453A, B. YOUTH AND YOUNG ADULTS: SOCIAL NEEDS AND SERVICES. (3 Credits.) The physical, psychological and social development of youth and young adults and the relationship of such development to demands of the social environment. Emphasis is on the effects of societal change on family roles, interpersonal relationships, educational and work achievement, youths' community role, social services for youth and young adults.
PROFESSOR DALFEN

407-454A, B. SOCIAL SERVICES IN THE HEALTH FIELD WORK. (3 Credits.) An examination of the relationship between illness and social conditions. Social planning, practice and research aspects of health care and the delivery of health services. An evaluation of current and developing professional roles of social workers in health teams, with particular emphasis on social rehabilitation of the physically and mentally ill. PROFESSOR MARCUS

407-455D. SEMINAR ON SOCIAL WORK PRACTICE. (6 Credits.) This course will focus on principles of social work practice and on developing skill in working with individuals, families, small groups and communities. Attention will be given to the applicability of selected social and psychological science concepts in constructing models of social work intervention. Methods of practice will be analysed from a range of settings, drawing upon student field experiences.

407-456D. FIELD PRACTICE. (6 Credits.) Supervised educational experiences in social work practice designed to integrate practice with theoretical knowledge. Through field placements in university affiliated teaching centres, students will work with individuals, families, groups and communities, receiving both individual and group instruction. Two days per week, September to mid April. Full time practice during May.

407-457B. LEGAL PROBLEMS OF THE POOR. (3 Credits.) A lecture-and-seminar course on law and social welfare, with the emphasis largely on the social-legal problems and rights of the poor, and methods of legal protection and redress available to them. Aspects of Canadian civil law and criminal law will be reviewed. Emphasis will be placed on the Quebec scene, with landlord-tenant, contract and debtor, matrimonial regimes, parental responsibility and social insurance. The total Canadian perspective will be considered in areas of divorce, unemployment insurance, arrest, and bail. ROBERT M. COOPER

407-458B. THE IMPLEMENTATION OF WELFARE POLICY. (3 Credits.) An analysis of policy issues which underlie selected social service programs; the administrative structure of such programs, their legislative base, their effectiveness and the role of professionals in the service delivery. Examples will be drawn from the current field experiences of students in the course. PROFESSOR WOODSWORTH

407-460A. POVERTY AND SOCIAL POLICY. (3 Credits.) An examination of the nature of poverty and of the characteristic problems of the poor, with comparative evaluation of alternative policies for resolution of the problems, including issues of maintenance of the incomes and social status of threatened populations. MEMBERS OF STAFF

407-461B. SEMINAR IN CORRECTIONS. (3 Credits.) An examination of criminal behaviour in Canada and the U.S., and the correctional system designed to deal with such behaviour. The

parts played by the Police, Judiciary, Penal System and the Probation and Parole Services will be discussed, together with the role of Social Work in the correctional process.
PROFESSOR DEEHY

407-470A. INTRODUCTION TO SOCIAL WORK RESEARCH. (3 Credits.) Introduction to the conceptual framework of scientific inquiry and its relationship to social work research and practice. Information on and experience with selected methods of research. Problem identification and formulation is stressed. PROFESSOR SHINER

407-472A. SEMINAR ON FAMILY ASSESSMENT. (3 Credits.) An advanced seminar designed to integrate knowledge of human personality in social process. Emphasis will be upon the appraisal and assessment of patterns of reciprocity among members of disturbed and disorganized families. PROFESSOR FREEMAN

407-473B. CASEWORK WITH INDIVIDUALS AND FAMILIES. (3 Credits.) Theory and practice of work with individuals and families under stress. Topics will include: categories of hazardous events; affective, behavioural and role disorganization; phases in the crisis cycle; techniques of crisis intervention and abatement. PROFESSOR KATZ

407-474A. METHODS OF COMMUNITY DEVELOPMENT, SOCIAL ACTION. (3 Credits.) The aim of this course is to develop an understanding of the organizing process and to enrich the student's repertoire of direct organizing skills. Emphasis is on organizational entities, community power and conflict, organizing strategies and their application, in the context of current issues in urban community development. PROFESSOR DEEHY

407-475B. COMMUNITY ORGANIZATION. (3 Credits.) A continuation of Methods of Community Development, Social Action, with emphasis on the integration of community organization theory and practice. An examination of problems encountered in practice, current issues and trends in the conceptualization of community organization. PROFESSOR GOLDBLOOM

407-476A. SOCIAL WORK PRACTICE WITH GROUPS I. (3 Credits.) Theory and practice of work with groups. Focus will be on group development theory and the skills of the worker as he strengthens group potential for mutual aid. Children and adult groups in a range of settings will be examined. PROFESSOR SHULMAN & MRS. REICHERTZ

407-477B. SOCIAL WORK PRACTICE WITH GROUPS II. (3 Credits.) An advanced course in practice, with emphasis on comparative theories of groups. PROFESSOR SHULMAN

407-478A. ACTIVITY GROUP METHODS. (3 Credits.) Theory and practice of the use of activity in work with groups. An analysis of a range of mediums through which group members provide mutual aid. An exploration of theoretical models of the role of the worker.
MRS. MELAMED

407-479B. SEMINAR IN INTEGRATION OF PRACTICE METHODS. (3 Credits.) Discussion seminar in which attention will be given to a range of beginning theoretical attempts to define an integrated method. Emphasis will be placed on the examination of existing practice models; the problems entailed in creating a common model which allows for a differential application, and a study of the central requirements for a functional statement of practice.
PROFESSOR KATZ

407-480D. FIELD INSTRUCTION. (6 Credits.) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the selected field. Individual and group instruction. FIELD INSTRUCTIONAL STAFF

SCIENCE FOR ARTS STUDENTS

Course descriptions appear in the appropriate departmental listings in the Faculty of Science section of this Announcement.

BIOLOGY 177-013A. ENVIRONMENTAL ISSUES. (3 Credits.)
CHEMISTRY 180-200B. PHYSICAL SCIENCE II. (3 Credits.)
CHEMISTRY 180-300A. HISTORY OF CHEMISTRY I. (3 Credits.
CHEMISTRY 180-310B. HISTORY OF CHEMISTRY II. (3 Credits.)
PHYSICS 198-200A. PHYSICAL SCIENCE I. (3 Credits.)
PHYSICS 198-224B. PHYSICS OF MUSIC. (3 Credits.)

SOCIOLOGY (166)

Stephen Leacock Building, General Information: Room 709, Telephone 392-5178

Major Program in Sociology

The Major program in Sociology is intended for students who do not wish to confine their studies to the sequence of courses required of Honours students. Admission to the Major program will normally take place after a student has completed an introductory course in sociology. A minimum grade of 65% in introductory sociology is required for acceptance into the Major program.

Required course work is as follows:

Introduction to Sociology
33 additional credits in Sociology
24 credits chosen from one or two of:

- Anthropology
- Economics
- Geography
- History
- Linguistics
- Political Science
- Psychology
- Religious Studies

Students wishing to be admitted to the Program should consult with Professor R. Hamilton.

The Honours Program

The Honours program is designed for students who are interested ultimately in pursuing graduate study in Sociology. Honours students are required to take a full program as required by Faculty with at least seven full courses or fourteen half courses (42 credits) in the field of Sociology. An additional 18 credits are required either from courses within Sociology or, with permission of the Undergraduate Honours Adviser, from courses relevant to the student's field of interest that are outside the Department. The total requirement, therefore, is 60 credits in Sociology or related areas.

Honours students must take a course in statistics (166-350A), a course in techniques of social research (166-461A), a course in the history of sociological theory (166-451A), and one other methods course. This may be either 166-463B, 166-465B, or a methods course approved by the Honours Adviser. In addition, the Honours student must take two graduate seminars in the final year. With consent of the Honours Adviser, supervised independent study — reading and research — may be substituted for one of these graduate seminars.

Entry into the program will normally be at the beginning of the U1 year. Entrants are required to have a strong B average including a strong performance in Introductory Sociology and approval of the Department.

In order to be allowed to remain in the program and to receive the Honours degree students must maintain a CGPA of 3.0, as well as GPA of 3.0 in Sociology courses. In addition, no course with a grade below C will be credited towards the 60 credits required for the Honours degree. In the case of courses specified by the program (statistics, methods, history of theory, etc.) a student receiving a grade below C may, with the permission of the Department, take a supplemental examination or repeat the course. In the case of a course being counted as one of the credits required by the program a student receiving a grade below C has the additional option of substituting a new course in Sociology providing that his total grade point average in Sociology remains above 3.0.

First Class Honours in Sociology will be granted based on a CGPA of 3.5 or above as well as a GPA of 3.5 or above in Sociology courses.

Joint Honours Programs

Joint Honours Programs exist with Anthropology, Economics and Political Science. A student taking such Joint Honours Programs must take at least 42 credits in Sociology. These courses must include the required courses indicated above.

Students wishing to be admitted to the Honours Program should consult with Professor R. Hamilton.

Course Descriptions

INTRODUCTION TO SOCIOLOGY

Introduction to Sociology is open to all students. The three options, E21A, E22B and E23A are somewhat different in their emphases (see the descriptions below) but completion of any of these courses will enable the student to take advanced courses in the Department.

INTRODUCTION TO SOCIOLOGY IS A PREREQUISITE FOR ALL COURSES IN SOCIOLOGY.

166-E21A. INTRODUCTION TO SOCIOLOGY. (3 credits.) A general introduction to sociological theory and the analysis of groups in modern society. The course covers comparative cultures, the social development of the individual, ethnic and class groupings, characteristics of urban life, social change, and institutional structures. PROFESSOR HAMILTON

166-E22B. INTRODUCTION TO SOCIOLOGY. (3 credits.) An introduction to sociological theory with special attention to symbolic interactionism. The rise of the sociological perspective, the nature of social interaction and the relationship between theories of the person and theories of the social structure will be dealt with. PROFESSOR SPECTOR

166-E23A. INTRODUCTION TO SOCIOLOGY. (3 credits.) The course offers a general survey of several selected traditions within sociology. Specifically, we shall focus on person-centered traditions (e.g. those centering on Weber and Durkheim), conceptual traditions (e.g. structural-functionalism, exchange, balance) and subject-centered traditions (e.g. family, stratification, etc.). PROFESSOR CARROLL

OTHER COURSES

166-217A. MASS COMMUNICATIONS. (3 credits.) Comparative and historical approach to the rise of the media and their impact on modern Canadian and U.S. society. The interrelationships between economic and media structures and their effect on message content. PROFESSOR ROCKMAN

166-217B. SOCIAL ASPECTS OF MASS COMMUNICATION. (3 credits; *Prerequisite:* 217A or permission of instructor.) A continuation of the first semester Mass Communications course, emphasizing issues in Canadian and international communications such as: Canadian Identity; the Wired City; satellite programming; international news flow; the image of women; and future technology. PROFESSOR ROBINSON

166-220B. COMPARATIVE SOCIOLOGY. (3 credits.) Comparison of the interrelations of political, economic and cultural institutions in 8 national societies, as they have changed during the 20th century: the United Kingdom, the USSR, China, Brazil, India, Nigeria, the USA, and Canada. Changing relationship of each national society to world-system. Course offered in alternate years only. PROFESSOR WALLERSTEIN

166-221A. CLASS AND POLITICS IN THE UNITED STATES. (3 credits.) Analysis of the class structure of the contemporary United States. Political attitudes and behaviour of elites, upper and lower middle classes, and the working class will be explored. The sources of stability and change will also be considered. PROFESSOR HAMILTON

166-222B. URBAN SOCIOLOGY. (3 credits.) Analysis of the "urban problem", of the major theoretical viewpoints (or the lack thereof) and their political-ideological origins. Specific studies of urban neighbourhoods, the social economy of housing, and urban political structures, will be related to the "problems". Major programs, public housing, urban renewal, and community action will be evaluated. PROFESSOR KROHN

166-223B. SOCIAL STRATIFICATION. (3 credits.) The theory of caste and class divisions in modern society; the structure of class groups in the United States and Canada; the criteria of rank and the symbols associated with rank; the relationship between occupation, education and class position; problems of upward and downward mobility. PROFESSOR PINARD

166-224B. CANADIAN SOCIETY. (3 credits.) Power structures in Canadian Society from Confederation until the present. Quebec and Canada. Social protest movements in 20th Century Canada. Question of Canada's survival as an independent nation by the year 2000. PROFESSOR EHRENSAFT

166-225B. MEDICINE & HEALTH IN MODERN SOCIETY. (3 credits.) Introduction to a series of socio-medical problems and ways in which sociologically oriented analysis and research are being used to understand and deal with them. Emphasizing Canada and Quebec, problems such as the following will be included: Poverty and Health; Mental Illness; Aging; Death and Dying; Professionalism; Health Service Organization. PROFESSOR LELLA

166-226A. ECOLOGY AND SOCIETY. (3 credits.) The social origins of the ecological crisis in industrial societies. Comparison of attempts to protect and regulate the environment in industrialized nations. Sociological basis of ecology-oriented social movements and pressure groups. Intensive studies of selected industries and their effects upon the environment. PROFESSOR EHRENSAFT

166-227A. DEVIANCE AND SOCIAL CONTROL. (3 credits.) Theories of deviance, the relationship between social change in modern society and the development of social problems; crime in modern society; the relationships between social power, the law, and crime, the slum community; the police and crime. PROFESSOR RAINS

166-228A. POWER AND SOCIETY. (3 credits.) Comparison of power structures in North America, Western Europe, Japan and the Soviet Union during the 20th Century. National power and international relations during the thermo-nuclear era and multinational corporations and national sovereignty. PROFESSOR EHRENSAFT

166-229A. SOCIOLOGY OF OPPRESSION. (3 credits; Not given 1973-74.) Processes of oppression and exploitation in advanced industrial societies, with special emphasis upon women and upon ethnic and racial populations. Special emphasis upon colonization and imperialism. PROFESSOR DIXON

166-247B. FAMILY AND KINSHIP. (3 credits.) The course will deal with the social structure of the family in Western and non-Western societies; the mutual interaction of the larger social system and family structure; family pathologies. PROFESSOR CARROLL

166-260B. INDUSTRIAL SOCIETIES. (3 credits.) A review and evaluation of the works of modern social critics of industrial society from the perspective of psychodynamics, social psychology, and organizational theory. This review will be used to understand and evaluate developments in family, school, and factory organizations, in Canada, Russia, and Yugoslavia. PROFESSOR WESTLEY

166-303B. CONTEMPORARY SOCIAL PSYCHOLOGY. (3 credits.) This course will discuss recent developments in social psychology. Selected topics will include the social psychology of religion, socialization, cognitive consistency, small groups and the sociological research process itself. The nature of the prevailing conceptual frameworks in social psychology will also be reviewed. PROFESSOR CARROLL

166-309A. SOCIOLOGY OF HEALTH AND ILLNESS. (3 credits.) A survey of sociological studies of persons who are ill, the occupations providing medical care, and the social organization of medical services. Each student carries out and writes a report on a modest field research project, based on interviewing, participant observation, or some other direct contact with people in medical settings. PROFESSOR SOLOMON

166-312A. INDUSTRIAL SOCIOLOGY. (3 credits.) A modular survey of the literature on industrialization, work organization, work groups, blue and white collar work and workers, and alienation. Students will work, without instruction, in small groups to discuss the major issues in industrial sociology. On each topic or module (as above) students will complete a short paper on which they will receive detailed criticism. Grades will be based on the number of modules the students choose to complete. PROFESSOR WESTLEY

166-317B. RESEARCH IN CANADIAN MASS COMMUNICATIONS. (3 credits; Not given 1973-74; to be given 1974-75.) An advanced course in mass communications which gives students an opportunity to generate and participate in group research projects analyzing the organization, functioning and content of Canadian media. Differences in French-English perspectives, the role of journalists, the portrayal of women in the media are possible research topics. PROFESSOR ROBINSON

166-326B. POLITICAL SOCIOLOGY. (3 credits.) The relation between social organization and the political process at the individual level; political participation and voting behaviour, with special reference to the Province of Quebec and Canada; problems of mass society and power structures; the effects of social organization on party systems; the role of public opinion and the mass media in politics. PROFESSOR HAMILTON

166-332D. SOCIAL ASPECTS OF DEVELOPMENT IN THE THIRD WORLD. (6 credits.) Demographic, cultural, psychological, and structural obstacles to economic growth. Strategies of development, from community organization to revolution, and a comparison of their effectiveness. The transformation of social structure under the impact of industrialization, urbanization, and "Westernization". PROFESSOR VON ESCHEN

166-340A/166-341B. CURRENT PROBLEMS IN SOCIOLOGY. (3 credits each. *Prerequisite:* Introduction to Sociology & permission of instructor. This course is intended for students

who are adequately prepared to undertake advanced work. A student may take no more than 6 credits from the following: 166-340A/166-341B, 166-342A/343B, 166-440A/166-441B, 166-442A/166-443B. Open to U2 and U3 students only.) A group of students who wish to take a course or seminar in some area of current problems in sociological theory or research, not presently offered in the Department, may request a member of the Department to present such a course or seminar. Topics to be chosen by students and staff jointly. It is the student's responsibility to obtain the instructor's written consent and to inform the Department prior to registration, Rm. L709. STAFF

166-342A/166-343B. INDEPENDENT READING AND RESEARCH. (3 credits each. *Prerequisite:* Introduction to Sociology & permission of instructor. This course is intended for students who are adequately prepared to undertake advanced work. A student may take no more than 6 credits from the following: 166-340A/166-341B, 166-342A/166-343B, 166-440A/166-441B, 166-442A/166-443B. Open to U2 and U3 students only.) A student having a highly developed and specialized interest not covered by a regular course in the Department will be allowed to pursue it under supervision of a member of the staff. It is the responsibility of the student to acquire the instructor's consent prior to registration and to inform the Department, Rm. L709. STAFF

166-350A. ELEMENTARY STATISTICS IN SOCIOLOGY AND ANTHROPOLOGY. (3 credits. Open to students who have not taken Psychology 204A, 205B, 206B or Economics 317D.) The basic concepts and techniques of statistical analysis applied in sociological and anthropological research problems. Topics include: frequency distributions, measures of central tendency and variation, simple correlation methods, sampling, tests of significance and non-parametric statistics. PROFESSOR SPECTOR

166-353A. SOCIAL CONFLICT. (3 credits.) The dynamics of conflict in society. Processes in the initiation and development of conflicts. Types of conflicts. In-group conflicts and conflicts with out-groups. The impact on existing structures. Limiting factors in conflict situations. The role of the agencies of social control. PROFESSOR VON ESCHEN

166-354D. SOCIAL CHANGE. (6 credits.) The process of social change in the modern world. National development within a world-system. The first semester will deal with the creation of a European world-economy, 1450-1815: commerce, capitalist agriculture, and statism. The second semester will deal with the capitalist world-system, 1815 to the present: industrialism, nationalism and revolution. PROFESSOR WALLERSTEIN

166-372B. SOCIAL REVOLUTION. (3 credits; Not given 1973-74.) Sociological analysis of the conditions and processes of social revolution. Case studies of the French Revolution, revolutions of 1848 (and their relations to Marxist theory), Russian Revolution, and wars of national liberation. PROFESSOR DIXON

166-407A. SOCIAL MOVEMENTS AND COLLECTIVE BEHABIOUR. (3 credits; Not given 1973-74.) General theoretical perspectives on collective behaviour. Theories of social movements and revolutions. Examination of a theory of communal (ethnic, religious, etc.) conflict and accommodation and its relevance for the analysis of Quebec's separatist movement. Analysis of other social movements and of elementary forms of collective behaviour (panics, crazes, hostile outbursts). PROFESSOR PINARD

166-410A. FORMAL SERVICE ORGANIZATIONS. (3 credits.) Existing theories are examined through the study of organizations which have professionals as central participants, such as medical and health organizations. Career strategies of professional and other personnel are related to organizational structure and process. PROFESSOR LELLA

166-415A. IMPERIALISM. (3 credits; Not given 1973-74.) Sociology of contemporary neo-colonialism. Includes study of Lenin, Luxembourg, Mandel, Baran, Sweezey, Frank, Magdoff and others. Case studies from different neo-colonial situations: Canada, Latin America and SE Asia. Particular attention to the political and economic policies of the U.S.A. since World War II, especially those leading to military interventions, e.g. Korea, Viet-Nam, Guatemala, Dominican Republic and Cuba. PROFESSOR DIXON

166-417B. THE SOCIOLOGY OF THE PROFESSIONS. (3 credits.) The development of specialized occupations such as medicine, nursing, teaching, law, science, engineering, and the military: occupations in non-Western societies; occupational organization and social control; types and stages of careers; self-involvement and personal identity in the professions. PROFESSOR SOLOMON

166-420B. THE STUDY OF ORGANIZATIONS. (3 credits.) An undergraduate seminar on theories of organizations and studies of armies, churches, government agencies, hospitals, police departments, schools, welfare agencies, and work organizations. Students will read and discuss the works of the major organizational theories and prepare a paper on typical and alternative organizations in one of the above areas. PROFESSOR WESTLEY

166-435A. THE SOCIOLOGY OF POPULAR CULTURE. (3 credits. *Prerequisites:* Sociology 217A (formerly 317B) or permission of instructor.) Explores theories of culture, folk, elite and

mass as related to the media of communication. In addition, it traces the effects of industrialization on the production of cultural messages and the role of the audience in modern society. Illustrations will be drawn from Canada, U.S., United Kingdom, Germany, Yugoslavia and the USSR. PROFESSOR ROBINSON

166-440A/166-441B. CURRENT PROBLEMS IN SOCIOLOGY. (3 credits each. *Prerequisite:* Introduction to Sociology & permission of instructor. This course is intended for students who are adequately prepared to undertake advanced work. A student may take no more than 6 credits from the following: 166-340A/166-341B, 166-342A/166-343B, 166-440A/166-441B, 166-442A/166-443B. Open to U2 and U3 students only.) A group of students who wish to take a course or seminar in some area of current problems in sociological theory or research, not presently offered in the Department, may request a member of the Department to present such a course or seminar. Topics to be chosen by students and staff jointly. It is the student's responsibility to obtain the instructor's written consent and to inform the Department prior to registration, Rm. L709. STAFF

166-442A/166-443B. INDEPENDENT READING AND RESEARCH. (3 credits each. *Prerequisite:* Introduction to Sociology & permission of instructor. This course is intended for students who are adequately prepared to undertake advanced work. A student may take no more than 6 credits from the following: 166-340A/166-341B, 166-342A/343B, 166-440A/166-441B, 166-442A/166-443B. Open to U2 and U3 students only.) A student having a highly developed and specialized interest not covered by a regular course in the Department will be allowed to pursue it under supervision of a member of the staff. It is the responsibility of the student to acquire the instructor's consent prior to registration, and to inform the Department, Rm. L709. STAFF

166-448B. ETHNOMETHODOLOGY. (3 credits.) The course will be directed to understanding and coming to terms with this new theoretical development in sociology which considers the methods and practices used by persons to interpret, construct and make sense of their world — to generate social reality. PROFESSOR RAINS

166-451A. THE HISTORY OF SOCIOLOGICAL THEORY. (3 credits.) Social and political debates of the 19th and 20th Centuries seen in their social contexts as the background of current theoretic concerns and developments. Emphasis falls on Smith, St. Simon, Marx, Durkheim, Weber, American functionalists, and the "Chicago School", and the social and theoretic traditions they originated and represent. PROFESSOR KROHN

166-455B. MEDICARE PLANS. (3 credits; *Prerequisite:* 309A Sociology of Health and Illness. Not given 1973-74.) A comparison of the social organization of medical care in the U.K., USSR, France, USA, Canada, and other countries. Emphasis on the politics of medicare and evolution of different types of plans in different social and political systems. PROFESSOR SOLOMON

166-460A. NATIONAL LIBERATION MOVEMENTS IN AFRICA. (3 credits; Not given 1973-74; to be given in 1974-75.) Historical background to national liberation struggles in southern Africa. Social roots and political strategies of African movements and white settler governments. Southern Africa's role in world-system. Links of liberation movements to world struggle. PROFESSOR WALLERSTEIN

166-461A. INTRODUCTION TO SOCIAL RESEARCH. (3 credits. *Prerequisite:* 350A Elementary Statistics in Sociology and Anthropology.) The course will offer the beginning student an introduction to the application of the scientific method to social phenomena, with examples drawn from the history of sociology. The course will centre around four non-quantitative research exercices, involving the construction and execution of a survey, content analysis, participant observation, and small group experimentation. PROFESSOR CARROLL

166-463B. FIELD METHODS IN SOCIOLOGY. (3 credits.) Participant observation; interviewing and the nature of questions and questioning; the relative advantages and disadvantages of these as methods of generating data and theory; ethical questions. PROFESSOR RAINS

166-465B. SURVEY ANALYSIS. (3 credits; *Prerequisite:* 461A Introduction to Social Research. Not given 1973-74.) The course involves the analysis of completed surveys. Students will be expected to write an original research paper based on survey materials. PROFESSOR HAMILTON

GRADUATE SEMINARS

NOTE: The following graduate seminars are open to final year Honours students with adequate preparation:

*166-603A Seminar: Dev/Grounded Theory & Organizational Change — Professor Lella

*166-612A Seminar: Radical Sociology — Professor Dixon

*166-615A Seminar: The Sociology of Medicine — Professor Solomon

*166-618A Seminar: The Sociology of Work — Professor Westley

*166-620A	Seminar:	Social Movements	Professor Von Eschen
166-622B	Seminar:	Problems in Mass Communications	Professor Robinson
166-627B	Seminar:	Political Sociology	Professor Hamilton
*166-631A	Seminar:	Corporations & Society	Professor Ehrensaft
166-640B	Research:	Qualitative Methods of Social Research	Professor Spector
166-654A	Seminar:	Quantitative Methods of Social Research	Professor Pinard
*166-661B	Seminar:	Sociology of Knowledge	Professor Krohn
*166-671A	Seminar:	Deviance & Social Control	Professor Rains
*166-672B	Seminar:	Social Change	Professor Wallerstein
166-680D	Seminar:	Applied Sociology & Alternative Organizations	Professors Solomon, Westley & Lella
166-681D	Seminar:	Social Movements	Professors Pinard & Von Eschen
166-682D	Seminar:	Economic Sociology	Professors Krohn & Ehrensaft
166-683D	Seminar:	World System	Professors Wallerstein, Dixon & Ehrensaft
166-684D	Seminar:	Deviance & the Labelling Perspective	Professors Rains & Spector
166-720A/B		Reading in Social Theory	Staff
166-730A/B		Reading & Research	Staff

*Not given 1973-74.

SPANISH LANGUAGE AND LITERATURE (144)

Samuel Bronfman Building, Room 680, Telephone 392-4600

The Spanish Department offers courses in language as well as literature and civilization of Spain and Spanish America. The basic philosophy of the Department is dominated by a desire to expand the students' liberal arts background by acquainting them with the culture of other national groups. An enrichment in this area, it is felt, reduces provincialism and broadens one's intellectual horizon. This humanistic approach is indispensable, regardless of professional interests or fields of specialization, such as high school or college teaching, or work in Latin American studies. One is a more competent professional if one has been exposed to this perspective.

Major Program

48 credits including 215A or B, 216A or B, or the equivalent. Students may wish to concentrate either in Peninsular Spanish literature or Spanish American literature. At least twelve credits should be taken in Spanish American literature if the Major is in Spanish literature, and vice versa.

REQUIRED COURSES

6 credits in civilization
6 credits in survey of literature
Spanish 144-355A (Methods of Literary Analysis)
Spanish 144-450D (Cervantes).

NOTE: Students concentrating in Spanish Peninsular Literature must take Spanish 144-456A (History of the Language).

Adviser to Major Program: Miss Sibbald, 392-4618.

Honours Program

With the permission of the Department, a more advanced Spanish course may be taken if the student has studied Spanish previously and has acquired proficiency in oral work.

The Honours program in Spanish has been designed to enable the student to pursue his studies in one of two directions:

1) Emphasis on Spanish Literature
2) Emphasis on Spanish American Literature.

Honours students are expected to achieve a high 'B' in all Spanish courses, as well as satisfactory standing in all other courses.

In order to be graduated with Honours in Spanish, a student will be required to write a research paper on a theme of his choice, under the guidance of a member of the Department.

The Department reserves the right to determine whether a student will be advanced or withdrawn from the Honours program.

Prerequisite: A First year Spanish course with a final grade of 75.

Requirements: A minimum of 60 credits including 215A or B, 216A or B.

NOTE: Courses numbered in the 50s (e.g., 351, 453, etc.) are designed primarily for Honours students. However, others may enrol with the permission of the instructor.

OBLIGATORY COURSES (to be taken during the U-2 or U-3 years):

Spanish 144-355A (Methods of Literary Analysis)

Spanish 144-450D (Cervantes)

Spanish 144-456A (History of the Language).

Honours students are expected to take *either* Spanish Civilization and Survey of Spanish American Literature *or* Spanish American Civilization and Survey of Spanish Literature as basic courses.

Honours adviser: Professor Michalski, 392-4602.

Joint Honours

Students may combine Honours in Spanish with Honours in any one of the following subjects: Classics, English, French, German, Italian, Linguistics, Philosophy, Russian. Students enrolled in Joint Honours are required to take 12 credits in Spanish each year. The following two courses must be included in the program: Spanish 144-355A (Methods of Literary Analysis) and Spanish 144-450D (Cervantes). As in the case of single Honours, a research paper will be required.

Students may begin Single or Joint Honours in Spanish in their second year if, in the opinion of the Department, they are qualified to do so.

Adviser: Professor Michalski, 392-4602, or Professor Lipp, 392-4601.

Course Descriptions

144-E11A,B. SPANISH LANGUAGE: BEGINNERS' COURSE. (3 credits.) First half of a comprehensive course in speaking, reading and writing. An introduction to Spanish and Spanish American civilization. Four hours weekly, including laboratory. PROFESSOR VARY

144-E12A,B. SPANISH LANGUAGE: BEGINNERS' COURSE. (3 credits; *Prerequisite:* E-11A or B, or the equivalent. Second half of a comprehensive course in speaking, reading and writing. An introduction to Spanish and Spanish American civilization. Four hours weekly, including laboratory. PROFESSOR VARY

144-215A,B. ADVANCED ORAL AND WRITTEN EXPRESSION. (3 credits.) Review of grammar. Practice in speaking and writing. Four hours weekly, including laboratory. MISS SIBBALD

144-216A,B. ADVANCED ORAL AND WRITTEN EXPRESSION. (3 credits. *Prerequisite:* 215A or B.) Review of grammar. Practice in speaking and writing. Four hours weekly, including laboratory. MISS SIBBALD

144-221A. SPANISH CIVILIZATION. (3 credits.) Survey of the culture and history of the Spanish people from the origins to the rise of the Spanish empire. MISS WILLIAMSON

144-222B. SPANISH CIVILIZATION. (3 credits.) Survey of the culture and history of the Spanish people from the Golden Age (including The Conquest of the New World) to the present era. MISS WILLIAMSON

144-231A. SPANISH AMERICAN CIVILIZATION. (3 credits.) From the indigenous period (Aztec, Maya and Inca civilizations) to Independence from Spain. PROFESSOR SANCHEZ

144-232B. SPANISH AMERICAN CIVILIZATION. (3 credits.) From Independence to the present era. PROFESSOR SANCHEZ

144-241A. SURVEY OF SPANISH LITERATURE. (3 credits.) From the origins to the Golden Age, through a study of representative works. PROFESSOR AMASUNO

144-242B. SURVEY OF SPANISH LITERATURE. (3 credits.) From the Golden Age to the modern period through a study of representative works. PROFESSOR AMASUNO

144-243A. SURVEY OF SPANISH AMERICAN LITERATURE. (3 credits.) From the Colonial period to Modernism through a study of representative works. PROFESSOR LIPP

144-244B. SURVEY OF SPANISH AMERICAN LITERATURE. (3 credits.) From Modernism to the present through a study of representative works. PROFESSOR LIPP

144-315A. FUNCTIONAL SPANISH. (3 credits.) A Third Year level course dealing with problems of advanced grammar and syntax. Written exercises, oral reports and summaries of reading selections will provide the basis for discussion. PROFESSOR AMASUNO

144-321A. SPANISH LITERATURE OF THE 18TH CENTURY. (3 credits. Not given in 1973-74.) A critical study of neo-classical drama and poetry: satirical prose: Jovellanos, Iriarte, Moratîn and others. MISS SIBBALD

144-322B. NINETEENTH CENTURY POETRY. (3 credits. Not given in 1973-74.) Romanticism in Spain through representative poets such as Espronceda, Zorrilla, Bécquer and others. PROFESSOR VARY

144-323A. 19TH CENTURY DRAMA. (3 credits. Not given in 1973-74.) Romantic, Realistic and Neo-romantic movements; theatre of the Generation of 1898. PROFESSOR OUIMETTE

144-324B. 20TH CENTURY DRAMA. (3 credits. Not given in 1973-74.) Satirical drama and theatre of social protest. *Literatura comprometida.* García Lorca and Casona; Buero Vallejo, Sastre, Olmo, Munîz, Arrabal and others. MISS SIBBALD

144-325D. THE SPANISH NOVEL OF THE 19TH CENTURY. (6 credits; Not given 1973-74.) The Romantic, Realist and Naturalist novel in Spain, with special emphasis on the works of Pérez Galdós and the development of the Spanish novel in relation to contemporary trends in other European countries. PROFESSOR OUIMETTE

144-327A. LITERATURE OF IDEAS: SPAIN. (3 credits. Not given in 1973-74.) Critical reading and discussion of works of outstanding thinkers as a key to understanding the development of social forces and institutions. PROFESSOR LIPP

144-328B. LITERATURE OF IDEAS: SPANISH AMERICA. (3 credits.) Critical reading and discussion of works of outstanding thinkers as a key to understanding the cultural development of a continent. PROFESSOR LIPP

144-332A. SPANISH AMERICAN LITERATURE OF THE 19TH CENTURY. (3 credits.) An intensive study of representative authors from the period of Independence to the advent of Modernism. PROFESSOR SANCHEZ

144-333A. SPANISH-AMERICAN DRAMA. (3 credits.) A study of the outstanding works of the theatre from the colonial period to the present, including pre-Columbian works. PROFESSOR MICHALSKI

144-350D. THE GENERATION OF 1898. (6 credits. Not given in 1973-74.) Spiritual and intellectual renewal in Spain from the war of 1898 to the Civil War, as seen principally in the works of Unamuno, Antonio Machado, Baroja and Valle Inclán. Politics and aesthetics. PROFESSOR OUIMETTE

144-351D. SPANISH AMERICAN NOVEL PRIOR TO WORLD WAR II. (6 credits. Not given in 1973-74.) Representative authors of the 20th Century. The novel of the land: The Indianist Novel, The Mexican Revolution. PROFESSOR SANCHEZ

144-355A. METHODS OF LITERARY ANALYSIS. (3 credits.) Discussion of literary style and techniques; recent trends in criticism. Critical study of various authors for purposes of illustration. PROFESSOR MARTINEZ

144-356A. SPANISH AMERICAN SHORT STORY. (3 credits. Not given in 1973-74.) Study of style, tendencies and types as reflected in the evolution of this genre, and seen against the background of a developing continent. PROFESSOR MICHALSKI

144-421D. GOLDEN AGE PROSE. (6 credits; Not given 1973-74.) The Picaresque and Pastoral Novels. Didactic and Historical Prose. Mysticism and Asceticism. PROFESSOR UGALDE

144-422D. MODERN LYRIC POETRY. (6 credits.) Poets in exile and counter movements in 20th Century Spain: Garcia Lorca, Alberti, Salinas, Aleixandre, Cernuda and Hernández. MISS SIBBALD

144-424B. SPANISH NOVEL SINCE THE CIVIL WAR. (3 credits.) Cela and *Tremendismo.* Women novelists. Writers in exile: Goytisolo and others. PROFESSOR AMASUNO

144-432B. SPANISH AMERICAN COLONIAL LITERATURE. (3 credits. Not given in 1973-74.) A study of the outstanding works from the period of conquest and colonization to the wars of Independence. PROFESSOR SANCHEZ

144-440A,B. THEMES IN HISPANIC LITERATURE. (6 credits.) Special group projects may be undertaken dealing with problems or themes not covered in any of the other course offerings. STAFF

144-442B. MODERNIST POETRY. (3 credits. Not given in 1973-74.) A study of the Modernist School of Spanish American Poetry, beginning with Rubén Dario. PROFESSOR MARTINEZ

144-450D. CERVANTES. (6 credits. Not given in 1973-74.) A study of the complete *Don Quijote*, the *Novelas ejemplares*, the *Entremeses* and other theatrical works. Some account of outstanding critical works on Cervantes. PROFESSOR UGALDE

144-451D. GOLDEN AGE DRAMA. (6 credits.) Study of representative works by Lope de Vega, Tirso de Molina, Calderón de la Barca and others. PROFESSOR UGALDE

144-453B. SPANISH AMERICAN POETRY SINCE MODERNISMO. (3 credits.) A study of the poetic movements which followed *Modernismo: ultraismo, vanguardismo, creacionismo.* PROFESSOR MARTINEZ

144-454D. SPANISH AMERICAN NOVEL SINCE WORLD WAR II. (6 credits. Not given in 1973-74.) A study of the "New Novel": its characteristics and techniques as represented by some of its outstanding contemporary exponents. PROFESSOR MARTINEZ

144-455D. GOLDEN AGE POETRY. (6 credits.) Study of representative poets of the Renaissance and Baroque periods. From Garcilaso and Italian influences to Góngora and Quevedo. MISS SIBBALD AND PROFESSOR VARY

144-456A. HISTORY OF THE LANGUAGE. (3 credits. *Prerequisite* for 144-457B.) The development of Spanish from its beginnings to the Modern Period, including usage in Spanish America and Judeo-Spanish. PROFESSOR HARVEY

144-457B. MEDIAEVAL LITERATURE. (3 credits. *Prerequisite:* 144-456A.) A study of important works of the period: *Poema de Mio Cid* to *La Celestina*. PROFESSOR HARVEY

144-470A. TUTORIAL.

144-471B. TUTORIAL.

144-472D. TUTORIAL.

URDU-HINDI (397)

397-E11D. INTRODUCTION TO URDU-HINDI. (6 credits; 5 hours, 1 lab.) Pronunciation, basic grammar and vocabulary, oral drills, both the Urdu (Arabic-Persian) and the Hindi (Deva-Nagari) alphabets, simple readings. This course is designed to allow the student to continue on to Elementary Urdu or Elementary Hindi.

397-E21D. ELEMENTARY URDU. (6 credits; 4 hours, 1 lab.) Further grammar and drills, prose, and poetry readings, composition.



10 FACULTY OF SCIENCE

STAFF

ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S.C., F.R.S. *Principal and Vice-Chancellor*

EIGIL PEDERSEN, B.A. (SGWU), M.A., Ed.D. (Harv.) *Vice-Principal (Academic)*

STANLEY B. FROST, B.D., M.Th. (London), Dr.Phil. (Marburg), D.D. (Vic., Tor.,), D.Litt. (Mem.) *Vice-Principal (Administration and Professional Affairs)*

DALE C. THOMSON, B.A. (Alta.), Ph.D. (Paris) *Vice-Principal (Planning)*

EDWARD J. STANSBURY, M.A., Ph.D. (Tor.) *Dean of the Faculty of Science*

MICHAEL HERSCHORN, B.A., M.A., Ph.D. *Associate Dean of the Faculty of Science*

ISOBEL OSWALD, B.A. *Assistant Secretary of the Faculty*

LATIF T. GHOBRIAL, B.A. (Monmouth), M.B.A. (Penn) *Recorder*

ANGELINE LUCAS *Senior Adviser*

LILA WILLIS *Senior Adviser*

COLIN M. McDOUGALL, D.S.O., B.A. *Registrar*

M. SAEED MIRZA, B.Eng. (Karachi), M.Eng., Ph.D. *Dean of Students*

PEGGY SHEPPARD, B.Ed., B.A. (SGWU) *Director, Admissions Office*

TEACHING STAFF

Anatomy

Professors — C. P. LEBLOND *(Chairman);* Y. CLERMONT; R. S. HARRIS; D. G. OSMOND

Associate Professors — B. KOPRIWA; N. J. NADLER; H. WARSHAWSKY

Assistant Professors — C. S. HARVEY *(Museum Curator);* A. HERSCOVICS; P. K. LALA; W. E. WILSON

Lecturers — G. C. BENNETT; F. BRAHIM; E. DANIELS; A. MORTON; J. WARD

Biochemistry

Professors — A. F. GRAHAM *(Chairman);* D. RUBINSTEIN; S. SOLOMON; T. L. SOURKES; J. H. SPENCER; L. S. WOLFE

Associate Professors — P. E. BRAUN; D. T. DENHARDT; M. J. FRASER; E. A. HOSEIN; ROSE M. JOHNSTONE; A. R. WASSERMAN

Assistant Professors — ELEANOR M. HARPUR; R. E. MacKENZIE; E. A. MEIGHEN; S. MILLWARD; W. MUSHYNSKI

Lecturer — M. R. REESAL

Associate Members — M. K. BIRMINGHAM *(Psychiatry);* R. BLOSTEIN *(Exp. Medicine);* J. DUPRE *(Exp. Medicine);* D. EDWARD *(Exp. Surgery);* W. C. GALLEY *(Chemistry);* L. GOODFRIEND *(Exp. Medicine);* L. M. JERRY *(Exp. Medicine);* H. PAPPIUS *(Exp. Neurochemistry);* C. SCRIVER *(Paediatrics);* J. SHUSTER *(Exp. Medicine)*

Biology

Professors — G. A. MACLACHLAN *(Chairman);* W. G. BOLL; E. R. BOOTHROYD; P. S. DIGBY; F. C. FRASER; P. R. GRANT; W. F. GRANT; J. R. MARSDEN; J. D.METRAKOS; B. B. MUKHERJEE; D. M. STEVEN; C. M. WILSON

Associate Professors — A. H. BUSSEY; S. P. GIBBS *(on leave);* M. E. GOLDSTEIN; E KAFER-BOOTHROYD; J. KALFF; W. LEGGETT; R. E. LEMON; V. M. PASZTOR *(on leave);* R. J. POOLE *(on leave);* R. O. SATTLER; R. SINCLAIR; K. SITTMANN; J. L. SOUTHIN; D. TRASLER; H. TYSON; N. WOLFSON

Assistant Professors — A. N. AUCLAIR; B. P. BRANDHORST; R. CHASE; D. FROMSON; D. M. MADISON; K. MAIER; G. MANLEY; W. OECHEL; J. M. SOMERS; J. SPENCE

Senior and Head Demonstrators — S. CAHN; J. HAGGETT; E. SHAPIRO

Affiliated Staff — J. W. BOYES; R. L. CARROLL *(Redpath Museum);* K. G. DAVEY *(Parasitology);* M. J. DUNBAR *(Marine Science);* R. GOLD *(Paediatrics);* P. HECHTMAN *(Paediatrics);* C. LALLI *(Marine Science);* L. PINSKY *(Paediatrics);* H. REISWIG *(Redpath Museum);* H. M. SCHULMAN *(Lady Davis Institute);* C. R. SCRIVER *(Paediatrics)*

Chemistry

Professors — L. E. ST-PIERRE *(Chairman);* B. BELLEAU; G. C. B. CAVE; J. T. EDWARD; G. JUST; S. G. MASON; M. ONYSZCHUK; D. PATTERSON; A. S. PERLIN; A. TAURINS; C. A. WINKLER; L. YAFFE

Associate Professors — I. S. BUTLER; T. H. CHAN; A. EISENBERG; B. C. EU; P. G. FARRELL; J. M. FRESCO; W. C. GALLEY; D. F. R. GILSON; A. E. GROSSER; D. N. HARPP; J. F. HARROD; R. V. V. NICHOLLS; R. F. ROBERTSON; M. A. WHITEHEAD

Assistant Professors — J. J. HOGAN; D. J. SIMKIN

Associate Members — H. GOLDSMITH *(Medicine);* G. B. SAHA *(Nuclear Medicine)*

Senior Research Associate — D. A. I. GORING

Research Associates — H. BOLKER; R. ST. JOHN MANLEY; A. A. ROBERTSON

Senior Instructors — J. BIRNIE; R. BROWN; C. E. DROVER; G. FREDERICK; E. HEYGE

Computer Science

Professor — G. MARSAGLIA *(Director, School of Computer Science)*

Associate Professors — J. K. S. McKAY; W. D. THORPE *(Director, Computing Centre)*

Assistant Professors — H. D. ABRAMSON; D. J. BURRAGE; J. W. BUTLER; T. H. MERRETT; C. C. PAIGE; G. F. G. RATZER; E. REGENER; A. M. VALENTI *(Associate Director, Computing Centre)*

Research Associates — G. TOUSSAINT; K. ANANTHANARAYANAN

Lecturers — B. J. FOX; N. PAUL

Geography

Professors — J. BRIAN BIRD *(Chairman);* H. BROOKFIELD *(on leave 1973-74);* B. J. GARNIER *(on leave 1973-74);* T. L. HILLS; TREVOR LLOYD

Associate Professors — M. A. CARSON; R. NORMAN DRUMMOND; J. M. GILMOUR; P. G. HOLLAND; J. O. LUNDGREN; B. H. MASSAM; J. T. PARRY

Assistant Professors — G. O. EWING; W. B. KEMP; T. R. MOORE; S. OLSON; L. VEILLEUX *(part time);* E. WADDELL; R. G. WILSON; R. ZIMMERMANN

Visiting Professor — R. M. LOGAN

Lecturer — J. DRAKE

Research Associate — G. SZEICZ

Honorary Professor — F. B. MULLER

Director — Subarctic Research Laboratory — F. C. NICHOLSON *(Assistant Professor)*

Geological Sciences

Professors — C. W. STEARN *(Chairman);* G. DONNAY; J. A. ELSON; V. A. SAULL; J. S. STEVENSON

Associate Professors — R. DOIG; P. R. EAKINS; R. H. GRICE; R. HESSE; E. W. MOUNTJOY; G. R. WEBBER

Assistant Professors — H. HELMSTAEDT; W. H. MacLEAN; R. F. MARTIN

Mathematics

Professors — E. ROSENTHALL *(Chairman);* M. BARR; I. CONNELL; C. HERZ; H. KAUFMAN; J. LAMBEK; W. MOSER; H. RUBEN; V. SESHADRI; C. SOLIN

Associate Professors — S. MELAMED *(Assistant Chairman);* W. BROWN; J. CHOKSI; C. COSTLEY; A. EVANS; K. GOWRISANKARAN; D. GILDENHUYS; M. HERSCHORN; W. JONSSON; E. KOUNIAS; J. LABUTE; B. LAWRUK; A. MATHAI; S. NEGREPONTIS; T. OKUBO; B. RATTRAY; R. RIGELHOF; C. ROTH; N. SANCHO; D. SUSSMAN; K. TAM; J. TAYLOR; R. VERMES

Associate Professors (Visiting 1972-73) — J. BECK; S. BREITSPRECHER; B. RAMACHANDRAN

Assistant Professors — M. BUNGE; S. DRURY; S. GROSSMAN; W. LANGFORD; S. MASLOWE; E. ROWLINSON; P. RUSSELL; G. SCHMIDT; G. STYAN; J. TURNER; S. ZLOBEC

Assistant Professors (Visiting 1972-73) — W. ANDERSON; J. GOLAN; W. OLSON; T. PAPAIOANNOU

Research Visitors 1972-73 — C. AUDERSET; A. BOYARSKY; J. BROWN; T. CACOULLOS; P. CAHEN; I. FAROUQUI; H. HUNG; K. JANSSEN; P. KOOSIS; H. LEUTWILER; C. MULVEY; H. SWIATAK

Special Lecturer — J. GARDNER

Lecturers — N. BORBA; G. BORGHI; E. BRETTLER; W. BUTLER; R. CHAN; S. COOPER; H. de ARAZOZA; W. DOUGLASS; G. FLEISCHER; E. FOX; T. FOX; E. GARON; C. GOWRISANKARAN, J. GRAHAM; I. GRIFFITHS; V. GURUSWAMI; M. HARROW; J.-G. HEBERT; A. KENNEDY; D. KINGSBURY; K. MacKENZIE; G. NAIR; C. PETROS; P. SCAROWSKI; H. SCHWERDTFEGER; K. TENNENHOUSE; M. YALOVSKY

Meteorology

Professors — SVENN ORVIG *(Chairman);* W. F. HITSCHFELD; J. S. MARSHALL; R. R. ROGERS

Associate Professors — J. F. DEROME; P. E. MERILEES *(on leave);* E. VOWINCKEL

Assistant Professors — D. E. DIETRICH; H. G. LEIGHTON

Teaching Fellow — D. ROBERTSON

Microbiology and Immunology

Professors — S. I. VAS *(Chairman);* B. H. MATHESON; J. W. STEVENSON; W. YAPHE

Associate Professors — Z. ALI KHAN; C. A. BUTAS; E. C. S. CHAN; *J. de VRIES; P. GILL; L. KAPICA; *G. K. RICHARDS; H. G. ROBSON; R. SIBOO

Assistant Professors — H. ABRAMOVITCH; *K. D. ELIE; *J. GORDON; V. GROH; R. HAND; *E. MANKIEWICZ; *J. MENDELSON

Lecturers — *S. NOMMIK; *E. WOOD

Demonstrator — C. SHAW

Teaching Assistants — D. CRISTEANU; L. THERRIEN

*Part-time.

Pharmacology and Therapeutics

Professors — M. NICKERSON, *(Chairman);* J. LOWENTHAL

Associate Professors — B. G. BENFEY; N. R. EADE; L. E. FRANCIS; J. R. RUEDY; D. R. VARMA

Assistant Professors — R. CAPEK; L. CHUNG; B. COLLIER; G. KATO; E. M. KOVACS; A. H. NEIMS; R. I. OGILVIE; R. E. RANGNO; J. B. RICHARDSON; M. C. ROBERTSON; B. I. SASYNIUK; A. TENENHOUSE; J. M. TRIFARO; M. S. YONG; B. ZABLOCKA-ESPLIN

Physiology

Professors — J. MILIC-EMILI *(Chairman);* R. I. BIRKS; T. M. S. CHANG; K. KRNJEVIC; F. C. MacINTOSH; G. MELVILL JONES

Associate Professors — R. F. D. CRONIN; J. H. DIRKS; P. GOLD; D. R. FIRTH; C. POLOSA; P. SEKELJ

Assistant Professors — M. W. COHEN; M. M. FROJMOVIC; V. KLISSOURAS; W. S. LAPP; M. LEVY; M. MACKEY; G. MANDL; J. S. OUTERBRIDGE; A. WECHSLER; R. L. WILLIAMS

Visiting Assistant Professor — F. KIRCHNER *(Heidelberg)*

Lecturers — M. HAZUCHA; P. WELDON

Associate Members — MARY ELLEN AVERY *(Prof., Paediatrics);* B. A. COOPER *(Associate Prof., Medicine);* B. DUBROVSKY *(Assistant Prof., Psychiatry;* H. L. GOLDSMITH *(Assistant Prof., Medicine);* C. A. GORESKY *(Associate Prof., Medicine);* C. A. LASZLO *(Asst. Prof., Biomedical Engineering);* P. T. MACKLEM *(Associate Prof., Medicine);* J. M. McKENZIE *(Prof., Exp. Medicine);* M. M. MORRIS *(Asst. Prof., Anaesthesia)*

Physics

Professors — J. M. ROBSON *(Chairman);* R. E. BELL; F. T. HEDGCOCK; W. HITSCHFELD; M. P. LANGLEBEN; B. MARGOLIS; J. S. MARSHALL; W. M. MARTIN; E. R. POUNDER; R. T. SHARP; D. G. STAIRS; E. J. STANSBURY; R. STEVENSON; P. R. WALLACE

Visiting Professor — G. A. WOONTON

Associate Professors — J. R. ADDISON; A. P. CONTOGOURIS; J. E. CRAWFORD; S. DAS GUPTA; C. S. LAM; S. K. MARK; J. F. MATHISON; R. B. MOORE; T. F. MORRIS; W. B. MUIR; P. M. PATEL; D. G. RYAN *(on leave);* N. de TAKACSY; M. ZUCKERMANN

Visiting Associate Professor — A. I. McPHERSON

Assistant Professors — G. L. AUSTIN; R. HARRIS; R. HENZI; J. E. KITCHING; J. K.-P. LEE; M. M. SHAPIRO; J. O. STRÖM-OLSEN; J. M. TRISCHUK; D. WALSH

Honorary Lecturer — P. C. LANDRY *(Faculty of Education)*

Readers — V. FORBES; M. LAFLEUR

Curator, Rutherford Museum — F. R. TERROUX

Psychology

Professors — G. A. FERGUSON *(Chairman);* D. BINDRA; D. G. DOEHRING; VIRGINIA DOUGLAS; D. O. HEBB; W. E. LAMBERT; R. B. MALMO; R. MELZACK; BRENDA MILNER; P. M. MILNER; E. G. POSER; M. S. RABINOVITCH

Associate Professors — A. BREGMAN; M. CORBALLIS; J. A. CORSON; D. DONDERI; G. GEIS; M. GOLDSCHMID; R. KANUNGO; J. MACNAMARA; A. A. J. MARLEY; R. O. PIHL; J. O. RAMSAY; MURIEL STERN; G. R. TUCKER; BLOSSOM WIGDOR

Assistant Professors — J. CAMPBELL; SUSAN CAMPBELL; C. PASCAL; W. E. PIPER; T. SCHULTZ; D. TAYLOR; N. WHITE

Lecturer — OLGA FAVREAU

Sessional Lecturers — B. BLIDSTEIN; MARGARET GOLICK; R. KACHANOFF; A. SCHLEIPER; ERIKA GUTBRODT

Clinical Consultants — N. GREENBERG; ERIKA GUTBRODT; A. SURKIS

PROGRAM INFORMATION

The Faculty of Science offers the Bachelor of Science degree (B.Sc.).

The Faculty of Science and the Faculty of Arts offer similar patterns of study towards their degrees. A student may choose among the Faculty programs, Major programs or Honours programs as described in the introductory section of this Announcement common to both Faculties. (See page 33.)

DEPARTMENTAL ADVISORY OFFICES

Anatomy, Strathcona Anatomy and Dentistry Building, Rm. 148
Biochemistry, McIntyre Medical Building, Rm. 802
Biology, Stewart Biology Building, Rm W 4/9
Chemistry, Otto Maass Chemistry Building, Rm. 312
Geography, Burnside Hall, Rm. 513
Geology, Frank Dawson Adams Building, Rm. 238
Mathematics, Burnside Hall, Rm. 1005
Meteorology, Burnside Hall, Rm. 720
Microbiology and Immunology, 3775 University Street, Rm. 515
Physics, Macdonald Physics Building, Rm. 105
Physiology, McIntyre Medical Building, Rm. 1023
Psychology, Stewart Biology Building, Rm. W 8/1 or W 8/8

FACULTY PROGRAMS

Note: A description of the Core Curriculum in Biology may be found on pages 179, 180.

Anatomical Sciences

The Core Curriculum in Biology as listed in the Department of Anatomy, page 173 (38 credits); Anatomy 504-261A; 504-311A; 504-312B; 504-421B; 504-481B (16 credits); plus 9 credits from upper year Biology, Biochemistry, Physiology, and Microbiology and Immunology courses.

63 credits: consult the Department of Anatomy to obtain an Adviser.

Biochemistry: Chemical Orientation

U1: Biology U1 Core Curriculum, plus Chemistry 180-204A, 180-214B, 180-222A, B.

U2: Biology U2 Core Curriculum, except that Physiology 552-211D may be substituted for Biology 117-303A and 177-305A, and Biochemistry 507-352D is also required.

U3: Three credits from: Biochemistry 507-450A, 507-451B, 507-454A. Six credits from: the Biochemistry courses listed above, or: Chemistry 180-207A, 180-217A, B, 180-253B, 180-302A, 180-311A, 180-313A, 180-323B, 180-362B.

58 credits: consult the Department of Biochemistry to obtain an adviser.

Biochemistry: Biological Orientation

U1: Biology U1 core Curriculum, plus Chemistry 180-204A, 180-214B, 180-222A, B.

U2: Biology U2 Core Curriculum, except that Physiology 552-211D may be substituted for Biology 177-303A and 177-305A, and Biochemistry 507-352D is also required.

U3: Three credits from: Biochemistry 507-450A, 507-454A, 507-455B, Six credits from: the Biochemistry courses listed above, or: Biology 177-310B, 177-311B, 177-312A, 177-313B, 177-314A, 177-385A, 177-386B; Anatomy 504-261A, 504-311A, 504-312B, 504-421B; Microbiology 528-311A, 528-312B, 528-314B, 528-424A, 528-425B.

58 credits: consult the Department of Biochemistry to obtain an Adviser.

Biogeography

Biology 177-205D*, 177-305A, 177-328B, 177-427A, 177-429A; Geography 183-214A or 183-300B, 183-201A, 183-271A, 182-272B, 183-203D, 183-302D, 183-305A, 183-324B, 183-351A, 183-451D.

57 credits: consult the Department of Geography to obtain an Adviser.

*Courses that should be taken in U1 are underlined.

Biology: General

Biology 177-201D, 177-205D, Chemistry 180-222A, B; 27 credits Biology courses; 12 credits science courses.

55 credits: consult the Department of Biology to obtain an Adviser.

Chemistry, Bioanalytical or Geoanalytical

Common Chemistry Courses: Chemistry 180-207A, 213A, B*, 217A, 222A, B, 223A*, 227B, 237B, 313A or 323B, 363D or 247A or 267B, 387D, 457B, Chemistry 180-212A, B, must be added if this course has not been taken previously.

To complete Bioanalytical Chemistry; The Core Curriculum in Biology.

To complete Geoanalytical Chemistry: Mathematics 189-245A, 323A, 324B, Physics 198-339B, Computer Science 308-200A, B, Geology 186-210A, 211A, 213A. One additional Geology Course.

*Chemistry 180-204A, 214B may be taken by Biology students in lieu of Chemistry 180-213A, B, 223A.

55-58 credits: consult the Department of Chemistry to obtain an Adviser.

Chemistry and Biological Sciences

Chemistry 180-222A, B, 204A, 214B, 207A, or 227B, 247A or 267B, 352A, 302A, 362A, Biology 177-201D, 205D, 301A, Physiology 552-211D, Mathematics 189-231A,B, Physics 198-339B, Computer Science 308-200A, B, Chemistry 180-213A, B, and 223A may be substituted for 180-204A and 214B, Chemistry 180-372A, B may be substituted for 302A. Students lacking Chemistry 180-212A, B, may take this program if they include this course in addition to those listed.

60 credits: consult the Department of Chemistry to obtain an Adviser.

Chemistry, Inorganic/Analytical

Chemistry 180-212A, B, 222A, B, 213A, B, 223A, 201A, B, 207A, 227B, 247A, 267B, 301B, 307A, 311A, 313A or 323B, Geology 186-210A, 211A, 213B, Mathematics 189-222A, B, 315A, B, Physics 198-232B; plus 6 approved credits.

56 credits: consult the Department of Chemistry to obtain an Adviser.

Chemistry, Radioanalytical

Chemistry 180-201A, B, 207A, 212A, B, 213A, B, 222A, B, 223A, 227B, 301B, 311A, 313A or 323B, 217A, 237B, 363D or 247A or 267B, 387D, 457B, 458A, Mathematics 189-245A, 323A, 324B, Physics 198-339B, E27B, Computer Science 308-200A, B.

58 credits: consult the Department of Chemistry to obtain an Adviser.

Climatology

Computer Science 308-200A, B; Geography 183-203D*, 321A, -324B, -322A, -323B, -422A, -423B; Mathematics 189-222A, B, -314A, B; Meteorology 195-210D, -310D; Physics 198-231A, B, -233A; Three credits to be approved.

56 credits: consult the Department of Geography to obtain an Adviser.

*Courses that should be taken in U1 are underlined.

Dynamics of the Oceans and Atmosphere

Mathematics 189-223A, 189-222A, B, 189-314A, B, 189-315A, B, 189-319A, B, 189-316B, 189-317A, 189-455D; Meteorology 195-210D, 195-410D, 195-652B; Physics 198-231A, 198-233A, 198-309A, 198-319B.

55 credits: consult the Department of Meteorology to obtain an Adviser.

Earth Physics — A

Computer Science 308-200A, B; Geology 186-303D, 186-220B, 186-442A, six further credits approved electives in Geology; Mathematics 189-222A, B, 189-223A, 189-314A, B, 189-315A, B, 189-319A, B; Physics 198-231A, B, 198-232A, B, 198-233A, 198-339B, 198-432A, 198-434B.

58 credits: consult the Department of Physics to obtain an Adviser.

Earth Physics — B

Computer Science 308-200A, B, Geography 183-271A, 183-272B; Geology 186-220B; Mathematics 189-222A, B, 189-314A, B, 189-323A; Meteorology 195-210D, 195-320A, 195-321B, 195-420D, 195-653D; Physics 198-232B, 198-233A, 198-309A, 198-334B.

56 credits: consult the Department of Meteorology to obtain an Adviser.

Geomorphology

Geography 183-271A*, 272B OR Geology 186-242A + 431B; Geography 183-321A OR Geology 186-233B; Geography 183-471D OR Geology 186-453B + 445A; Geography 183-308B OR Geology 186-492A; Geography 183-201A, 202B, 305A, 322A, 323B, 423B, 321A; Geology 186-210A, 232A, 310D, 446A, 449B.

54 credits: consult the Department of Geography *or* the Department of Geology for an Adviser.

*Courses that should be taken in U1 are underlined.

Hydrology

Computer Science 308-200A, B; Engineering 303-107A*, B; Geography 183-271A, -272B, -305A, -201A or -308B, -321A, -322A, -323B, -423B; Geology 186-232A, 449B; Mathematics 189-222A, B; -314A, B, -315A, B, -323A, -324B; Physics 198-231A, B or 233A.

55 credits: consult the Department of Geography to obtain an Adviser.

*Courses that should be taken in U1 are underlined.

Marine Geology

Chemistry 180-201A, 180-301B, 180-213A; Geology 186-210A, 186-211A, 186-213B, 186-303D, 186-233B, 186-312A, 186-220B, 186-343D, 186-347B, 186-348B, 186-453B; Mathematics 189-222A, B; Physics 198-233A, 198-309A.

55 credits: consult the Department of Geology to obtain an Adviser.

Mathematics and Biology

Mathematics 189-221A, B, 222A, B, 223A, 315A, B, 319B, 317A, 323A, 324B, 327B, Computer Science 308-200A, B, Biology 177-201D, 205D, 206D, 301A, 303A, 305A, 309B.

Consult the Department of Mathematics to obtain an Adviser.

Mathematics and Chemistry

Chemistry 180-212A, 213A, 223A, 313A, 323B, nine credits Chemistry electives, three or six credits electronics, Computer Science 308-200A, B, Mathematics 189-223A, 222A, B, 314A, B, 315A, B, 319B, 317A, 323A, 324B.

54 or 57 credits: consult the Department of Chemistry to obtain an Adviser.

Mathematics, Chemistry and Physics

Chemistry 180-213A, 223A, 212A, 313A, 323B, three credits chemistry electives, Computer Science 308-200A, B, Mathematics 189-223A, 222A, B, 314A, B, 315A, B, 319B, Physics 198-231A, 232B, 339B, six additional credits in Physics.

54 credits: consult the Department of Mathematics to obtain an Adviser.

Mathematics and Physics

Computer Science 308-200A, B; Mathematics 189-222A, -223A, -314A, B, -315A, B, -317A, -319B, -323A, -324B; Physics 198-231A, B, -232A, B, -233A, -341B, -346D, -431A, -432A or 434B, -437B or -438B plus 3 or 6 credits chosen from 198-339B, 308-210A, B, 189-410D, 189-455D.

58 credits: consult the Department of Physics to obtain an Adviser.

Mathematics and Psychology

Mathematics 189-222A, B, 223A, 323A, B, 324A, B, 423A, 424B or Psychology 204-305A, B, 357B, six credits Introductory Psychology, 335A, 336B, twelve credits of options selected from Mathematics 189-217A, 218B, 314A, B, 317A, 318A, 328B, 417A, 447D, Computer Science 308-200A, or other approved courses, twelve credits selected from Psychology non-statistics courses.

54 credits. (This faculty program leads to either a B.A. or a B.Sc. degree. Consult the Department of Mathematics or the Department of Psychology to obtain an Adviser.)

Microbiology and Immunology

U1: Biology Core Curriculum plus Chemistry 180-222A, B
U2: Biology Core Curriculum; Microbiology 528-311A, 528-314B; Biology 177-310B
U2 and U3: Nine additional credits selected from courses offered by the Department.
53 credits: consult the Department of Microbiology and Immunology to obtain an Adviser.

Paleobiology

Biology 177-205D, 177-305A, six credits chosen from 177-325A, 177-326B, 177-440A, 177-348D; Chemistry 180-213A; Geology 186-210A, 186-211A, 186-233B, 186-312A, 186-310D, 186-343D, 186-430B, 186-434D, and 3 approved credits.
54 credits: consult the Department of Geology to obtain an Adviser.

Psychology

Any of the Major sequences in Psychology with the substitution of six credits from U2 courses in Psychology for Psychology 204-211D; 305A, B.
54 credits: consult the Department of Psychology, 392-4708, or Ms Olga Favreau, 392-4694 to obtain an Adviser.

Quaternary Studies

Anthropology 151-357A, 151-347B; Biology 177-205D, 177-305A, 177-352A, 177-353B, 177-427A and either 177-430A, or 177-325A; Geography 183-271A, 183-272B, 183-321A, 183-324B, 183-305A, 183-451D and either 183-306A or 183-308B; Geology 186-431B. Courses that should be taken in U1 are underlined.
54 credits: consult the Department of Geography to obtain an Adviser.

MAJOR PROGRAMS

Major programs are available in the following disciplines; details are listed with the departmental entries in the Calendar.
Anatomical Sciences
Biology
Chemistry
Crystallography (See Geological Sciences)
Geography
Geological Sciences
Mathematics
Meteorology
Microbiology and Immunology
Physics
Physiology
Physiology and Physics
Psychology

HONOURS PROGRAMS

Honours programs are available in the following disciplines; details are listed with the departmental entries.
Anatomical Sciences
Biochemistry
Biology
Chemistry
Crystallography (See Geological Sciences)
Geography
Geological Sciences
Mathematics
Meteorology
Physics
Psychology
Solid Earth Geophysics (See Geological Sciences)

DEPARTMENTAL OFFERINGS AND PROGRAMS OF STUDY

For graduate courses in all Departments see the Announcement of the Faculty of Graduate Studies and Research.

An official lecture timetable is available before Registration.

ANATOMY (504)

Strathcona Anatomy and Dentistry Building, Room 1/48, Telephone 392-4881.

The Department of Anatomy is deeply concerned with basic research and teaching in Human Anatomy at the undergraduate, graduate and Medical and Dental School levels. The Department houses several units doing basic research into the structure and function of cells, tissues and organs and is well equipped to pursue subjects in cell biology using modern techniques of radioautography and electron microscopy. To carry out research the Department contains numerous large laboratories, a complete radioautography unit and a large electron microscopy unit with five electron microscopes. The teaching program benefits from the use of an advanced T.V. system. Thus, students contemplating an academic career in the Anatomical Sciences have a unique opportunity to work with people actively engaged in advanced research and to observe the influence of their work on the teaching of Anatomy, Histology and Embryology.

Programs in the Anatomical Sciences

The Biology core curriculum, as outlined below, is required for all programs in Anatomical Sciences: Biology 177-201D; 177-205D; 177-206D; Mathematics: 189-231A, B; Biology 177-301A, B; 177-303A; 177-305A; one of the following, Biology 177-309B; 177-303A; Mathematics 189-232B; Psychology 204-204A, B. Plus, Chemistry 180-212A, B; 180-222A, B. (Total of 38 credits.)

FACULTY PROGRAM (Total of 63 required Credits). For details see Faculty Programs, page 169.

MAJORS PROGRAM (Total of 66 required Credits).

The Biology core curriculum requirements as listed above (38 credits); plus, Anatomy 504-261A (Histology); 504-311A (Musculo-skeletal); 504-312B (Visceral); 504-462D (Dynamic Histology); 504-421B (Neuroanatomy); 504-481B (Embryology); and 504-431D (seminars). Students are also advised to take Physiology 552-211D as an option.

HONOURS PROGRAM (Total of 72 required Credits).

The Department also offers an Honours program for those students who have obtained a GPA of 2.8 or better at the end of U2, and who intend to pursue graduate studies in Anatomy. The Honours degree will be recommended for those students who obtain a CGPA of 2.8 or above at the end of U3. The following courses constitute the Honours Program:

The Biology Core Curriculum requirements as listed above (38 credits); plus, Biology 177-302A, B; Chemistry 180-204A; Anatomy 504-261A (Histology); 504-311A (Musculoskeletal); 504-312B (Visceral); 504-462D (Dynamic Histology); 504-421B (Neuroanatomy); 504-481B (Embryology); 504-431D (Seminar). Qualified honours students (those having a GPA of 3.3 or better in U2, or with a lower GPA but with special permission) may be permitted to take Anatomy 504-432D (Research) making a total of 78 credits.

Course Descriptions

504-261A. INTRODUCTORY HISTOLOGY. (4 credits; 3 hours lectures, 2 hours laboratory.) A light and electron microscope study of the principal mammalian tissues and organs with emphasis on human histology. Open to U1 students who are taking the core curriculum courses concurrently, or to U2 students. This course is restricted in size.

504-311A. HUMAN MUSCULO-SKELETAL ANATOMY. (3 credits; 2 hours lectures, 2 hours laboratory; *Prerequisites:* First year core curriculum courses, and/or permission of the Department.) Introduction to human anatomy devoted primarily to a description of the skeleton and muscular system.

504-312B. HUMAN VISCERAL ANATOMY. (3 credits; 2 hours lectures, 2 hours laboratory; *Prerequisites:* First year core curriculum courses.) An introductory course in human anatomy devoted to the visceral systems, including the circulatory, respiratory, digestive and reproductive systems. This course, together with 504-311A constitutes a complete course in human anatomy at the introductory level.

504-413A. ANATOMY OF THE LIMBS AND BACK. (4 credits; 1 hour lecture, 6 hours laboratory dissection per week). A specialized course in the anatomy of the limbs and axial system designed for Physiotherapists. This course is open by permission only to other specially qualified individuals.

504-414A. ANATOMY OF THE LIMBS AND BACK. (3 credits; 1 hour lecture, 4 hours laboratory on prosected material per week.) A specialized course in the anatomy of the limbs and axial system designed for Occupational Therapists. This course is open by permission only to other specially qualified individuals.

504-421B. GENERAL HUMAN NEUROANATOMY. (3 credits; 2 hours lectures, 2 hours laboratory; *Prerequisites:* Core curriculum courses of U1 or by permission of the Department.) Introductory course in neuroanatomy emphasizing the structure and function of the brain, spinal cord and peripheral nerves.

504-462D. DYNAMIC HISTOLOGY. (6 credits; 2 hours lectures supplemented by occasional laboratory and seminars at suitable intervals; *Prerequisites:* 504-261A Introductory Histology and the Core curriculum courses of U1 and U2.) An advanced course to cover topics such as cell cycle, cell population kinetics and cellular metabolism as related to structure in selected tissues, and experimental morphology.

504-481B. HUMAN EMBRYOLOGY AND DEVELOPMENT. (3 credits; 2 hours lectures, one 2 hour laboratory every alternate week; *Prerequisites:* Core curriculum courses of U1 and U2; 504-261A Introductory Histology and one of either 504-311A Musculo-Skeletal Anatomy or 504-312B Visceral Anatomy.) A comprehensive treatment of human embryology and development.

504-431D. SEMINARS IN MORPHOLOGICAL SCIENCES. (6 Credits.) One advanced research seminar per week over the entire year given by invited local or out-of-town speakers on their own current research activities. All biological science students are invited to attend, but only Anatomical Sciences Majors and Honours students can take this course for credit.

504-432D. RESEARCH PROJECTS IN ANATOMICAL SCIENCES. (6 Credits; 1 full day, supplemented by additional time, when available. *Prerequisites:* Honours in Anatomical Sciences with a GPA of 3.3 or better in the U2 year; and/or special permission to other Honours in Anatomical Sciences students.) An optional full year's exposure to individually supervised, original research in anatomical sciences. The concentration will be on the application of morphological methods such as electron microscopy and radioautography to the solution of basic problems in cell biology. A research report, plus an oral examination by a Departmental committee will evaluate the candidate's performance. (May not be offered in 1973-74.)

BIOCHEMISTRY (507)

McIntyre Medical Sciences Building, Room 802; Telephone 392-4243.

Living organisms — animals, plants, and microorganisms — derive nutrients from their environment and metabolize these various compounds by a series of converging pathways. A relatively small number of metabolites is thus obtained, and can be used to produce energy and as starting material for synthesis of cellular components. The energy produced is used to convert the compounds via a series of diverging metabolic pathways into important building blocks for the synthesis of macromolecules; e.g. nucleotides for DNA synthesis, amino acids for protein synthesis.

The biochemist is interested in the coordination and regulation of the many processes involved in this general scheme. The study of each of these processes in detail results in areas of specialization. For example, biochemists are interested in the mechanisms of nervous activity, muscle contraction, growth and aging, inheritance and evolution. They are finding out how light is used in the production of organic matter by green plants and how some creatures produce light. The knowledge and methods developed by biochemists are applied in all fields of medicine, in agriculture, and in many industries. Biochemistry is a science which is contributing to far-reaching changes in the life of mankind.

The Department of Biochemistry at McGill occupies the 8th and 9th floors of the McIntyre Medical Sciences Building. The teaching and research laboratories were built in 1965 and are well equipped for modern biochemical research. All members of staff of the Department carry out research projects in collaboration with their students and postdoctoral fellows.

An Honours Program and two Faculty Programs are offered in the Department. The Honours Program is the usual path towards postgraduate study in Biochemistry, and eventually to research in hospital, university or industrial laboratories. The Faculty Programs in Biochemistry are less specialized than the Honours Program, but can also lead to graduate studies in the field.

A thorough background in biology, organic and physical chemistry, and mathematics is essential for students following any of the Biochemistry programs. However, the only prerequisite for the introductory Metabolism and Regulation course (507-352D) is Biology 177-201D, and students specializing in related disciplines are welcome to take this course or any other biochemistry course for which they have the necessary prerequisites.

Inquiries about programs or courses should be directed to the Administrative Assistant, Department of Biochemistry, Room 802 McIntyre Medical Sciences Building, telephone 392-5021.

Faculty Programs

For details see Faculty Programs, page 169.

Courses recommended for entry to these programs are: 6 credits elementary Biology, 6 credits general Chemistry, 3 credits organic Chemistry, 6 credits Calculus.

Honours Program in Biochemistry

Courses recommended for entry to this program in U1 are: 6 credits elementary Biology, 6 credits general Chemistry, 3 credits organic Chemistry, 6 credits Calculus and 3 credits Analytical Geometry and Vectors.

A student must have a GPA for the previous year of at least 2.8 with no failures on his CEGEP record to be admitted to Honours in U1. He must achieve a GPA of 3.1 in U1 with a B in every required course to be admitted to the U2 program, and a GPA of at least 3.2 and a B in every course for admission to U3 (requirements for entry to U3 are being reviewed by the Department). For graduation, all required courses in the Honours Program must have been passed with no grade of less than B and the CGPA must be at least 3.0.

A student who has the required courses and achieves a satisfactory standing in U1 may be allowed at the discretion of the Department to transfer to the Honours Program in U2. There is no entry to the Honours Program in U3.

Courses in the Chemistry Honours Program may be substituted for comparable courses in the Biochemistry Honours Program with the permission of the Chemistry professor concerned.

The usual program of courses for the three university years follows:

U1: 30-31 Credits
Biology 177-201D, 177-205D, 177-206D;
Chemistry 180-204A, 180-214B, 180-222A, B;
Mathematics 189-222A, B; Optional Course (2-3 credits).

U2: 33 Credits

Biology 177-301A, 177-302B; Physiology 552-211D; Biochemistry 507-352D; Chemistry 180-217A, B, 180-302A, 180-313A, 180-362A, 180-352A or 180-372A; Mathematics 189-315A, B.

U3: 30 Credits

Biochemistry 507-450A, 507-454A, 507-460A. Total of 15 credits from the following: Biochemistry 507-451B, 507-455B, 507-461B; Biology 177-303A and/or 177-305A (if Physiology 211D taken in U2), 177-310B, 177-311B; Chemistry 180-253B, 180-311A, 180-356A; Microbiology 528-314B; Physiology 552-211D (if Biology 177-303A and 177-305A taken in U2); other courses recommended by the Department.

Course Descriptions

177-301A, 302B. LABORATORY IN CELL AND MOLECULAR BIOLOGY. PARTS I AND II. (See Biology listings.)

507-352D. METABOLISM AND REGULATION. (6 Credits; *Prerequisite:* Biology 177-201D; *Co-requisites:* Biology 177-301A, 177-302B.) A general course in biochemistry, emphasizing the regulatory aspects of carbohydrate and nitrogen metabolism in mammalian systems, with special reference to the action of hormones, allosteric enzymes, and integration of cellular functions. PROFESSOR JOHNSTONE AND STAFF

507-450A. PROTEIN STRUCTURE AND FUNCTION. (3 Credits; *Prerequisites:* Biology 177-301A, 177-302B.) Primary structures of enzymes and their evolution. Secondary, tertiary and quaternary structure of enzymes, including some known three-dimensional structures. "Classical" and modern enzyme kinetics. Structure-function relationships of certain enzymes, including allostery. Multi-enzyme systems. PROFESSORS MacKENZIE AND MEIGHEN

507-451B. BIOPHYSICAL CHEMISTRY. (3 Credits; *Prerequisites:* Chemistry 180-204A, 180-214B or 180-213A, 180-223B; Chemistry 180-313A recommended. This course is listed also as Chemistry 180-404B.) Molecular weight determination and hydrodynamic parameters, optical properties and structure analysis of biopolymers and application to biological systems. PROFESSORS MEIGHEN AND GALLEY (Chemistry)

507-454A. NUCLEIC ACIDS. (3 Credits; *Prerequisite:* Biochemistry 507-352D.) Chemistry of mammalian, bacterial and viral nucleic acids, synthesis of polynucleotides, replication, transcription. PROFESSORS DENHARDT AND SPENCER

507-455B. NEUROCHEMISTRY. (3 Credits; *Prerequisite:* Biochemistry 507-352D.) Structure and composition of nervous tissue in relation to its functions. Special aspects of metabolism of nerve and brain including energy metabolism. Water and electrolyte balance. Exchanges between blood and brain, and between brain and cerebrospinal fluid. Neurotransmitters and modulators. Nutrition and development of the nervous system. Neuroendocrinology. Biochemistry of nervous and mental diseases. PROFESSORS SOURKES AND WOLFE AND STAFF

507-460A. ADVANCED LABORATORY IN BIOCHEMISTRY. (6 Credits; open only to U3 Honours Biochemistry students.) A laboratory designed to acquaint the student with various biochemical techniques. PROFESSOR DENHARDT AND STAFF

507-461B. RESEARCH PROJECTS IN BIOCHEMISTRY. (6 Credits; registration by departmental permission only; *Prerequisite:* Biochemistry 507-460A.) Individual work on a project to be performed in a research laboratory. STAFF

BIOLOGY (177)

Most staff and laboratories of the McGill Department of Biology are located in the Stewart Biological Sciences Building complex on McGregor Avenue (between Peel and Drummond). The first seven floors of the north and west wings (referred to as N1 to N7 and W1 to W7) contain teaching and research laboratories, staff offices, services and administrative centres. The main office is in W4/room 5 (phone 392-4643). The Senior Program Adviser has an office in room W4/9 (phone 392-5828), the Biology Student Union is in N2/8 (phone 392-5765). The south block contains the greenhouses, Botany and Genetics Library (S3/1) and lecture theatres.

Some full-time and affiliated members of the Department have offices and laboratories elsewhere, e.g., at the Redpath Museum, Marine Sciences Centre, Macdonald College, Montreal Children's and Jewish General Hospitals, and some courses are conducted partly in these locations. Course field work is carried out in facilities at Mt. St. Hilaire, the Morgan Arboretum, Huntsman Marine Laboratories (New Brunswick), the Barbados, etc. Libraries at McGill which are used by biology students include the McLennan Undergraduate Library, the Blacker-Wood Library of Zoology and the McIntyre Medical Library.

The Department of Biology was created in June, 1970, by fusion of 3 former Departments (Botany, Genetics and Zoology). Currently it has approximately 50 teaching staff, 50 non-academic supporting staff (secretaries and technicians), 100 graduate students and/or postdoctoral fellows, and 5000 undergraduate full-course registrations. A diminishing number of students are registered in college-equivalent courses (E1 or E2) since pre-university training is being phased out at McGill. Most students are in one of the three-year programs (U1, U2 or U3) which lead to a B.Sc. degree in Biology (general, major or honours) or to entrance to the McGill Medical School. A McGill Biology B.Sc. degree (with appropriate specialization) can be used as prerequisite for entry here or elsewhere to various graduate programs in the biological and bio-medical sciences (leading to M.Sc. or Ph.D. degrees), or to professional schools (medicine, agriculture, nursing, library, education, etc.). It is also the main direct requirement for many jobs, e.g. technical posts in industry and government laboratories, hospitals, research institutes.

This Department does not attempt to offer courses or programs in all branches of Biology. At the graduate level, its resources are focused on development of four main areas of study: Cell, Molecular and Developmental Biology, Ecology, Human Genetics and Neurobiology. At the undergraduate level, Majors/Honours degrees are offered in these 4 fields and also in Animal Behaviour, Marine Sciences and Plant Sciences. In order to ensure that its graduates have had a suitably broad general background in modern biology, whatever their branch of specialization, this department co-operates with four departments in the Faculty of Medicine to give a Core Curriculum of basic courses in the biological sciences. Most of the core is required for the various B.Sc. degree programs offered in all of these departments (see below, page 179). Most courses in U2 and U3 are given at a level which assumes one or another of the core courses as prerequisite.

The general or "Faculty" program in Biology has been devised with a minimum of specified required courses in order to accommodate those students who are undecided or who do not wish to specialize in the fields emphasized by the department, as well as those who intend to take unusual combinations of biology with another subject. The faculty program leads to a B.Sc. which may be awarded with "Distinction" or "Great Distinction" if a CGPA of 3.3 or 3.5 respectively is attained. Seven options in the Honours/Major program have been devised (details below) for students who wish to begin specialization in areas in which the department has special resources and the expertise required to offer a variety of courses. Students in their final year of these programs are encouraged to take a special project (Independent Studies in Biology) which includes research work directed by a Faculty member in the field of their special interest. The initial choice of which program to enter is usually made at the end of U1, and changes may be possible from one program to another at the end of U2.

The courses listed below are not described in any great detail. For those who want more information, the department has prepared a "blue book" (sold at the McGill Bookstore) which describes in detail the content of each course and the level at which it is given, the aims and methods used, lecturers, references, grading procedures, etc. The book also contains more information on registration, counselling, committee structure and the research interests and facilities which are represented in the department.

Honours Program

Any Biology Major student obtaining a grade point average of 3.5 in U2 may be admitted to the Honours Biology Program upon request, and the Honours Biology degree will be awarded to students so admitted who maintain a grade point average of 3.5 in U3, and meet Faculty Honours guidelines.

Major Program

Courses are listed in the recommended sequences, taking prerequisites and time table into account.

ANIMAL BEHAVIOUR OPTION (61 Credits):

Required courses (43 Credits): *U1:* Biology 177-201D, -205D, -206D; Chemistry 180-222A, B; Mathematics 189-231A, B; Psychology 204-201D. *U2:* Biology 177-391A, -392B. *U2 or U3:* Biology 177-301A, B, -305A; plus one of the following courses: Biology 177-309B, -373A, Mathematics 189-232A, B, Psychology 204-204A, B.

Plus 18 Credits, in *U2 or U3,* from the following: Biology 177-303A, -325A, -326B, -348D, -349B, -351B, -385B, -386B, -394B, -427A, -488B, -493B; Psychology 204-300A, -308D, -309B, -304A, -401D, -404B, -420D.

CELL, MOLECULAR AND DEVELOPMENT OPTION (61 Credits):

Required courses (43 Credits): *U1:* Biology 177-201D, -205D, -206D; Chemistry 180-222A, B, -204A, -214B; Mathematics 189-231A, B. *U2:* Biology 177-301A, B, 302A, B, -303A. *U2 or U3:* Biology 177-305A recommended (may be substituted by a U2 or U3 Biology course dealing with whole organisms or populations); plus one of the following courses: Biology 177-309B, -373A, Mathematics 189-232A,B.

Plus 9 Credits in *U2* from the following: Biology 177-310B, 177-313B or -321B, 177-318B or -320B; Chemistry 180-302A; Biochemistry 507-352D.

Plus 9 Credits in *U2 or U3* from the above or the following: Biology 177-311B, -312A, -314A, -316B, -319C, -357A, -415B, -417A, -422D, -465B, -471B, -477A to -480D (max. 6 credits); Anatomy 504-261A; Biochemistry 507-450A, -451B, -454A; Microbiology and Immunology 528-314B, -423A, -424A; Physiology 552-411A.

ECOLOGY OPTION (60 Credits):

Required courses (30 Credits): *U1:* Biology 177-201D, -205D, -206D, -305A; Mathematics 189-231A, B. *U2 (or U3):* Biology 177-301A, B, -303A; and one of the following courses: Biology 177-373A (recommended) or one of 177-309B, Mathematics 189-232A, B, Psychology 204-204A, B.

Plus 15 Credits, in *U2 or U3,* from the following: Biology 177-325A*, -326B, -328B, 331F, -385B, -427A, -429A.

Plus 15 Credits, in *U2 or U3,* from the above or the following: Biology 177-349B, -350D, -351B, -355A, -357A, -358A, -372B*, -391A, -392B, -430A, -440A, -441B, -487B; Geography 183-321A, -451D; Computer Science 308-220A, B.

*Only one of Biology 177-325A or -372B may be taken for credit.

HUMAN GENETICS OPTION (55 Credits):

Required courses (43 Credits): *U1:* Biology 177-201D, -205D, -206D, -274A, B (=E27A, B); Mathematics 189-231A, B. *U1 or U2:* Chemistry 180-222A, B, -204A. *U2:* Biology 177-370B. *U2 or U3:* Biology 177-301A, B, -303A, -372B; and one of the following courses: Biology 177-373A (recommended) or one of 177-309B, Mathematics 189-232A, B, Psychology 204-204A, B.

Plus 12 Credits, in *U2 or U3,* from the following: Biology 177-305A, -310B, -313B or -321B, -314A, -320B, -417A, -471B, -477A or -478B; Psychology 204-430B; Biochemistry 507-352D.

MARINE BIOLOGY OPTION (55 Credits):

Required courses (40 Credits): *U1:* Biology 177-201D, -205D, -206D; Chemistry 180-222A, B; Mathematics 189-231A, B. *U2:* Biology 177-305A, -348D; *U2 or U3:* Biology 177-301A, B, -440A, -441B.

Plus 15 Credits in *U2 or U3* from the following: Biology 177-303A, -319C (or -331F), -325A, -326B, -328B, -349B, -351B, -359B, -373A (or -309B, or Mathematics 189-232A, B or Psychology 204-204A, B), Biology 177-384A, -385B, -427A, -430A.

NEUROBIOLOGY AND COMPARATIVE PHYSIOLOGY OPTION (55 Credits):

Required courses (40 Credits): *U1:* Biology 177-201D, -205D, -206D; Mathematics 189-231A, B; Chemistry 180-222A, B, -204A. *U2:* Biology 177-386B. *U2 or U3:* Biology 177-301A, B, -305A, -385B and one of the following courses: 177-309B, -373A, Mathematics 189-232A, B, Psychology 204-204A, B.

Plus 15 Credits in *U2 or U3* from the following: Biology 177-303A, -311B*, -350D, -390B*, -391A, -392B, -487B, -488B; Psychology 204-420D; Biochemistry 507-352D, -455B; Physiology 552-413A*.

*At most one of these courses may be selected towards credits for this program.

PLANT SCIENCE OPTION (54 Credits):

Required courses (36 Credits): *U1:* Biology 177-201D, -205D, -206D; Mathematics 189-231A, B. *U1, U2 or U3:* Biology 177-301A, B, -305A, -355A, -357A, -358A, -429A.

Plus 18 Credits from the following: *U1-U3:* Chemistry 180-222A, B; Biology 177-316B, -356B, -359B, -361A, -362A, -363B. *U3:* Biology 177-465B, -477A to -480D (max. 6 Credits).

The Core Curriculum in Biological Sciences

The Core Curriculum in Biology is a sequence of courses designed to form a basis for all university level programs in the Biological Sciences. It is sponsored jointly by the Departments of Anatomy, Biochemistry, Biology, Microbiology and Immunology, and Physiology.

Students in programs related to other Departments may take individual courses from the Core Curriculum. It should be noted that most upper year courses in the Biological Departments will have some Core courses as prerequisites, so sequential planning of courses will need to be done carefully.

Those students taking Core courses are advised to distribute all or most of those between U1 and U2 (or U3, if not prerequisite to any required course of their program) as indicated below in order to leave room for the other requirements of their programs. Many programs require several chemistry courses as co-requisites which should be taken in U1 if possible.

The common requirements for all students registered in biologically oriented programs are as follows:

U1: 177-201D, 177-205D, 177-206D and 189-231A, B. *U2:* 177-301A, B.

In addition, some or all of the following courses are required depending on the department and/or option selected for study:

U2 (or U3): 177-302A, B, 177-303A, 177-305A, plus one of the following courses: 177-309B, 177-373A, Mathematics 189-232A, B, Psychology 204-204A, B.

Education students and students admitted in January who find difficulty in scheduling these biology courses should consult the Senior Program Adviser of the Biology Department, Room W 4/9, Stewart Biology Building.

Course Descriptions

PRE-CORE COURSES

177-E10D. INTRODUCTION TO BIOLOGY. (6 Credits; 2 hours lectures, 3 hours laboratory per week.) An introduction to the basic principles of biological science and the nature of life processes in plants and animals. Designed for students continuing in Biology. STAFF

177-013A. COLLABORATIVE STUDIES IN SCIENCE AND HUMAN AFFAIRS (formerly Biology and Social Change). (6 Credits, 5 hours; *Prerequisites:* None; Open to all CEGEP and University students in B.A., B.Sc., etc.). A course offered in collaboration with Sir George Williams University. The "McGill Program" consists of lectures and modules; the "Sir George Program" consists of modules and independent or group projects. A student may elect to follow either program. PROFESSOR SOUTHIN, Biology, McGill
PROFESSOR CHAMBERS, Humanities of Science, Sir George Williams

177-E16B. BIOLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory/conference per week.) An introduction to selected aspects of contemporary biology and their application to environ-

mental problems. Designed primarily for physical science and engineering students. Students wishing to keep open the option of transferring into Biology should not take E16B but select E10D. PROFESSORS OECHEL AND SPENCE

177-E27A, B. PRINCIPLES OF GENETICS. (3 Credits; 3 hours lectures, one hour conference optional; *Prerequisite:* 177-E10D.) A survey of the gene as the fundamental unit of heredity, with a special emphasis on human genetics. A: PROFESSOR METRAKOS AND STAFF
B: PROFESSOR TRASLER AND STAFF

THE COURSES OF THE CORE CURRICULUM IN BIOLOGICAL SCIENCES

177-201D. CELL AND MOLECULAR BIOLOGY. (6 Credits; 2 or 3 lectures per week, 1 hour conference every alternate week; *Prerequisite:* 177-E10D, or permission of the departmental adviser.) This course is designed to give the student a comprehensive account of the cell in terms of its chemical and physical properties and include discussions of cell ultrastructure; bioenergetics and biosynthetic pathways; selected biophysical processes; gene expression and regulation mechanisms operative in the control of metabolism. The lectures will be based on the assumption that students have already taken a minimum of 3 credits in organic chemistry (e.g., 180-E22A, B or 180-212A, B). Further credits in organic and physical chemistry are desirable. PROFESSOR SINCLAIR AND STAFF

177-205D. BIOLOGY OF ORGANISMS. (6 Credits; 3 hours lectures; *Prerequisite:* 177-E10D or equivalent, or 177-15A or 177-16B.) A study of organisms from the standpoint of structural and physiological adaptation to the environment. Development of the basic levels of organization. Mechanisms of evolution. Adaptations necessary for major evolutionary advances. Life in aquatic, terrestrial and aerial environments. PROFESSOR CARROLL AND STAFF

177-206D. LABORATORY COURSE IN BIOLOGY OF ORGANISMS. (3 Credits; 1 laboratory per week or its equivalent throughout the year; *Co-requisite:* 177-205D.) A companion course to the lecture series in Biology of Organisms. Examination of the functional morphology of microorganisms, plants and animals, both living and fossil. Experimental studies on the physiological adaptations of organisms to their environment. PROFESSOR MARSDEN AND STAFF

189-231A, B. MATHEMATICS FOR BIOLOGISTS. (3 Credits; 3 hours lectures; *Prerequisite:* 189-E14 or E15 or equivalent.) Introductory probability theory, vectors and matrices, differential and difference equations with applications to the biological sciences.
PROFESSOR TURNER (Mathematics Dept.)

177-301A, B. LABORATORY IN CELL AND MOLECULAR BIOLOGY (PART 1). (3 Credits; 1 lecture and one 6-hour laboratory per week; *Prerequisite:* 177-201D.) A half course in laboratory techniques. Together with 177-302A, B, this laboratory course is divided into three 8-week sections which are organized independently in three separate locations. Each section is divided into parts (a) and (b). The topics covered in each are listed under Biology 302A, B. Students taking Biology 301A may choose parts (a) and (b) of any one section, plus (a) of either section 2 or 3. Students taking Biology 301B start with part (b) of either section 2 or 3, followed by parts (a) and (b) of any other section. PROFESSORS SOMERS AND HECHTMAN AND PROFESSOR WASSERMAN (Biochemistry Dept.)

177-302A, B. LABORATORY IN CELL AND MOLECULAR BIOLOGY (PART 2). (3 Credits; 1 lecture and one 6-hour laboratory per week; *Prerequisite:* 177-301A, B.) Together with Biology 301A, B this laboratory course is divided into three sections. Each section is divided into parts (a) and (b) listed below. Students wishing to take a full year of laboratory work, as recommended for certain programs, may do so by registering for 301A followed by 302B, or 301B followed by 302A. It is not possible to take 301A and 302A or 301B and 302B. These students will complete all experiments listed below (though not necessarily in sequence).

Section 1 (a): Isolation of DNA, hydrolysis and paper and thin layer chromatography of bases. Metabolism of C_{14} by rat adipose tissue, chemical separation of metabolic products and radioactive counting.

(b): Exercise on radioactivity and planchet counting. Subcellular fractionation of tissue; enzymic and chemical markers of organelles: brief enzymology.

Section 2 (a): Ionization, pH and electrophoresis. Photosynthesis in green algae and in isolated chloroplasts. Isolation of mitochondria and study of electron transfer using oxygen electrodes. Spectrophotometry. Membrane potentials and ions.

(b): Enzyme purification and assay. Protein measurement. Enzyme kinetics. Separation of proteins and estimation of molecular weight by gel filtration.

Section 3 (a): Microbial metabolism: control mechanisms and inhibition of macromolecular syntheses.

(b): Microbial genetics: conditional mutants of DNA synthesis and repair of DNA; bacteriophage growth; genetic fine structure analysis; chromosome mapping in bacteria.
PROFESSORS SOMERS AND HECHTMAN AND PROFESSOR WASSERMAN (Biochemistry Dept.)

177-303A. AN INTRODUCTION TO DEVELOPMENTAL BIOLOGY. (3 Credits; 2 lectures and 1 laboratory per week; *Prerequisite:* 177-201D.) A course designed to acquaint the student with the fundamental processes and principles operating during embryogenesis of both plants and animals. The developmental process will be considered at the molecular, cellular and organismic levels with integration of these three levels to give a total appreciation of developmental phenomena. The laboratory will be designed to give the students first-hand experience with embryological materials and experiments relevant to understanding how developmental processes are investigated. PROFESSORS FROMSON, WOLFSON AND STAFF

177-305A. ENVIRONMENTAL BIOLOGY. (3 Credits; 3 hours lectures; *Prerequisite* or *Co-requisite:* 177-205D.) An introduction to the principles of ecology, dealing with individuals, populations and communities of plants and animals, and concluding with a consideration of Man's relationship with the environment. PROFESSOR AUCLAIR AND STAFF

177-309B. APPLICATIONS OF MATHEMATICS TO BIOLOGY. (3 Credits; 2 hours lectures and 1 hour conference; *Prerequisites:* 189-231A, B, and elementary calculus.) Use of calculus, matrix algebra and probability, (for example) in statistical techniques and in mathematical models of biological problems. PROFESSOR FIRTH (Physiology Department)

POST-CORE COURSES

177-274A, B. PRINCIPLES OF GENETICS. (3 Credits; 3 hours lectures, 1 hour conference, optional; *Prerequisite:* 177-E10D.) A survey of the gene as the fundamental unit of heredity, with a special emphasis on human genetics. A: PROFESSOR METRAKOS AND STAFF
B: PROFESSOR TRASLER AND STAFF

177-310B. GENERAL MOLECULAR GENETICS. (3 Credits; 3 hours lectures, one period every other week used for conferences; *Prerequisite:* 177-201D.) A survey of current topics in molecular genetics, including the chemical nature of inheritance, protein synthesis, mutation, gene control and gene structure. PROFESSOR BUSSEY

177-311B. BIOPHYSICAL APPROACH TO CELL FUNCTION. (3 Credits; 2 hours lectures, 1 hour seminar; *Prerequisites:* 177-201D, 180-214B; Not given in 1973-74, given in 1974-75.) A detailed discussion of selected topics in cell physiology and biophysics, with emphasis on ion transport and photosynthesis. PROFESSOR POOLE

177-312A. CELL GROWTH. (3 Credits; 2 hours lectures, 1 hour conference; *Prerequisite:* 177-201D.) Molecular events, metabolism and control mechanisms in the growth and death of cell populations *in vivo* and *in vitro*. Molecular and organelle progression through the cell cycle. Models of cell growth. PROFESSOR SINCLAIR

177-313B. THE ULTRASTRUCTURAL BASIS OF CELL FUNCTION. (3 Credits; 2 hours lectures, 2 hours seminar; *Prerequisite:* 177-201D; Not given in 1973-74; given in 1974-75.) A detailed discussion of the functional organization of cells. PROFESSOR GIBBS

177-314A. MOLECULAR BIOLOGY OF SOMATIC CELLS. (3 Credits; 3 hours lectures; *Prerequisite:* 177-201D.) Methods in cell genetics; recent studies in intracellular regulation, contact inhibition, cell-cell communication, oncogenic RNA and DNA viruses, mechanisms of transformation, molecular biology and immunological properties, and other related topics. PROFESSORS MUKHERJEE AND PINSKY

177-316B. PLANT GROWTH AND MORPHOGENESIS. (3 Credits; 2 hours lectures and seminar; *Prerequisite:* 177-357A or permission of instructor; Given in 1973-74, not given in 1974-75.) Physiological, biochemical and physiological-genetic approaches to the study of growth, differentiation and morphogenesis. Hormones and growth regulators, environmental control, physiology of reproduction, and senescence are discussed at a more advanced level than in 357A. PROFESSOR BOLL

177-318B. DEVELOPMENT BIOLOGY, EXPERIMENTAL. (3 Credits; 1 hour lecture, 1 hour discussion, 3 hours laboratory; *Prerequisite:* 177-303A or permission of instructor; Not given every year, see instructor.) Interactions of developing cells and organisms with their micro- and macro-environments, taking as examples early embryonic cells, protozoa, and immunologically active cells. Laboratroy projects will use amphibian embryos. PROFESSOR WOLFSON

177-319C. DEVELOPMENTAL BIOLOGY, MARINE. (Field course; 3 Credits; 3 weeks full-time, lectures and laboratory; *Prerequisite:* 177-303A or equivalent, permission of instructor; Not given every year, see instructor.) The course includes both comparative and experimental studies on embryos of marine organisms available at the Huntsman Marine Laboratory, St. Andrews, in the spring. PROFESSOR WOLFSON

177-320B. GENE ACTIVITY IN DEVELOPMENT. (3 Credits; 2 hours lectures, 1 hour discussion; *Prerequisites:* 177-303A; 177-310B recommanded, or permission of instructor.) An assessment of the experimental work dealing with gene activity and its regulation during embryological development. Topics: gene amplification; DNA, RNA, and protein synthesis during embryogenesis; nucleocytoplasmic interactions; hormones as regulators of gene activity and models or differentiation. PROFESSOR FROMSON

177-321B. CYTOLOGY AND CYTOGENETICS. (3 Credits; 2 hours lectures, 2 hours seminar or 3 hours laboratory in different weeks; *Prerequisites:* 177-201D; 177-274A, B (E27A, B) recommended.) The genetic appartus, from molecules to chromosomes, is studied with respect to structure, behaviour and function. The main stress is on chromosomes of higher organisms, somatic and meiotic, relating structure and function. PROFESSOR BOOTHROYD

177-325A. PROCESSES IN EVOLUTIONARY ECOLOGY. (3 Credits; 2½ hours lectures and ½ hour conference; *Prerequisites:* 177-305A; only one, either 177-325A or 177-372B can be taken for credit.) Genetic properties and dynamics of natural populations with emphasis on qualitative traits. Models of population growth, mating systems, genetic variance, and types of natural selection. PROFESSOR SITTMANN

177-326B. PATTERNS IN EVOLUTIONARY ECOLOGY. (3 Credits; 2 hours lectures, 1 hour conference; *Prerequisite:* 177-325A.) The evolution of ecological characteristics, chiefly at the population level. The influence of natural selection upon birth rates, brood size, parental care, age at first breeding, longevity, maximum population size, feeding strategies, competitive relations, etc. PROFESSOR P. GRANT

177-328B. RESOURCE BIOLOGY. (3 Credits; 2 hours lectures, 2 hours conference; *Prerequisite:* 177-305A or permission of instructor.) A comprehensive study of the nature of renewable resources, the demands made on these resources by human activities, and the principles of resource management and/or conservation. PROFESSOR LEGGETT

177-331F. ECOLOGY FIELD COURSE. 10 day Field Course in early September, with a comprehensive report to be prepared during 'A' term. (3 Credits; *Prerequisites:* 177-205D, 305A and permission of instructor.) Methods of sampling natural populations of animal and plant species in fresh water and terrestrial habitats. Estimating population size from samples. Energy flow determinations. Construction of a simple model of an ecosystem, using field estimates for each compartment. PROFESSOR P. GRANT AND STAFF

177-346A. PHILOSOPHY OF BIOLOGY. (3 Credits; 3 hours lectures or conferences; *Prerequisite:* Any introductory biology course; not given in 1973-74; given in 1974-75.) An introduction to the philosophical foundations of biology and their relevance to research and theories in various biological disciplines. PROFESSOR SATTLER

177-347B. HISTORY OF BIOLOGY. (3 Credits; 3 hours lectures; *Prerequisite:* Any introductory biology course; given in 1973-74; not given in 1974-75.) The development of scientific observation and measurement in plant and animal anatomy, comparative morphology, ecology, embryology, physiology and palaeontology. Theories of the relationships of living organisms, their parts and their evolution. Biological expeditions, societies and journals. PROFESSOR DUNBAR

177-348D. THE BIOLOGY OF INVERTEBRATA. (6 Credits; 2 hours lectures and 3 hours laboratory; *Prerequisites:* 177-205D, 177-206D.) A survey course of the invertebrate groups (with the exception of terrestrial arthropods) stressing comparative morphology, functional anatomy and relationships between major taxa. PROFESSOR REISWIG

177-349B. BIOLOGY OF FISHES. (3 Credits; 2 lectures and 1 laboratory per week; *Prerequisites:* 177-205D, 177-206D or permission of instructor.) An advanced course on the biology of fishes with emphasis on their ecology, behavior, and adaptation to specific environmental conditions. PROFESSOR LEGGETT

177-350D. GENERAL ENTOMOLOGY. (6 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-205D, 177-206D, 177-303A or permission of instructor.) The biology of insects and other terrestrial arthropods, including their physiology and development. PROFESSOR DAVEY

177-351B. BIOLOGY OF MAMMALS. (3 Credits; 2 lectures and 1 laboratory per week; *Prerequisites:* 177-205D, 177-206D or permission of instructor.) The Biology of Mammals including their ecology, behavior and adaption to specific ways of life. PROFESSOR STEVEN

177-352A. VERTEBRATE EVOLUTION. (3 Credits; 3 hours lecture; *Prerequisites:* 177-205D, 177-206D or equivalent.) Development of modern evolutionary theory, particularly as it applies to vertebrates. The origin and evolution of the major groups of vertebrates, their anatomy, phylogeny and zoogeography. PROFESSOR CARROLL

177-353B. PROBLEMS IN VERTEBRATE EVOLUTION. (3 Credits; 1 hour lecture, 6 hours laboratory; *Prerequisite:* 177-352A.) Investigation of current problems in the phylogeny and anatomy of vertebrates; laboratory work with fossil vertebrates and extensive use of literature. A series of problems will be investigated involving each of the major vertebrate groups. PROFESSOR CARROLL

177-355A. PLANT ANATOMY. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* 177-201D, 205D or permission of instructor; Given in 1973-74; not 1974-75.) An introduction to the general organization and development of cells, tissues and organs, the relation of anatomy to other biological disciplines and everyday life. The laboratory includes sectioning, fixing, staining, photography, etc. PROFESSOR SATTLER

177-356B. THE FLOWER. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* 177-201D, -205D; Given in 1973-74; not 1974-75.) The morphology, anatomy, development, adaption and evolution of the flower. Brief consideration also will be given to the importance of the flower in history, art and literature. The practical work will include a project, which will be carried out during the laboratory periods. PROFESSOR SATTLER

177-357A. PLANT PHYSIOLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-201D, 177-205D; Not given in 1973-74; Given in 1974-75.) Topics include water relations, nutrition, some physiological aspects of respiration and photosynthesis, translocation of solutes, elementary growth and development, response to environmental factors and adaption. PROFESSOR BOLL

177-358A. CANADIAN FLORA. (3 Credits; 2 hours lectures, 3 hours laboratory, Field trips early in the term; *Prerequisite:* 177-E10D or equivalent.) A study of the higher plants occuring naturally in Canada, including their recognition, collection, identification and classification. PROFESSOR MAIER AND STAFF

177-359B. THE ALGAE. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* 177-205D or permission of instructor.) The study of the morphology, cytology (including ultrastructure), aspects of physiology, and the ecology of the major groups of the algae. PROFESSOR GOLDSTEIN

177-361A. BRYOPHYTA AND PTERIDOPHYTA. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-205D, 177-206D; Not given in 1973-74.) Discussion of the organization and evolution of bryophytes and pteridophytes. PROFESSOR MAIER

177-362A. MYCOLOGY I. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* Introductory course in Biology.) General characteristics of the slime molds, Phycomycetes and Ascomycetes (Lower Fungi). Emphasis is placed upon the role of these fungi among living things, including their means of reproduction and utilization of complex organic matter. PROFESSOR WILSON

177-363B. MYCOLOGY II. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* Introductory course in Biology.) General characteristics of Basidiomycetes and Fungi Imperfecti. Role of the higher fungi among living things including reproduction, utilization of complex organic matter, geographical distribution, mycorrhizal associations and economic factors. Isolation and culture techniques of fungi in general. PROFESSOR WILSON

177-370B. GENETICS OF MAN. (3 Credits; *Prerequisites:* 177-274A, B (E27A, B), 177-201D, or permission.) A contemporary view of the genetic factors determining human characteristics, normal and abnormal. PROFESSORS FRASER, METRAKOS AND MUKHERJEE

177-372B. POPULATION GENETICS. (3 Credits; 2½ hours lectures and ½ hour conference; *Prerequisite:* 177-274A, B (E27A, B) or permission of instructor.) Topics include: Hardy-Weinberg equilibrium in random mating populations, inbreeding coefficient and rate of gene loss, separation of phenotypic variation into genetic and environmental components, correlated characters, genotype and environment interaction. PROFESSORS SITTMANN AND TYSON

177-373A. INTRODUCTORY BIOMETRY. (3 Credits; 2 hours lectures, 2 hours laboratory; *Prerequisite:* 189-E11A or the equivalent.) Elementary statistical methods for testing hypotheses and designing experiments in biology; probability, sampling, distributions, tests of significance, the analysis of variance, regression, correlation, and the analysis of frequency data. PROFESSOR TYSON

177-384A. PHYSIOLOGY OF MARINE ORGANISMS. (3 Credits; 2 lectures and 1 laboratory per week; *Prerequisites:* 177-205D, 177-206D, or permission of instructor.) Physiology of marine organisms, with special reference to fundamental principles underlying operation of the various systems. PROFESSOR DIGBY

177-385B. ENVIRONMENTAL PHYSIOLOGY OF ANIMALS. (3 Credits; 2 hours lectures, option of 3 hours laboratory or conference and seminar; *Prerequisites:* 177-201D, 177-205D, 177-206D, 177-305A or instructor's permission.) The physiological adaptations of organisms to different environments with emphasis on energetical aspects and the interactions between internal controls and the environment. PROFESSOR SPENCE

177-386B. NEUROBIOLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* 177-205D.) A comparative study of information processing in sensory systems of animals, the integrative networks within the nervous system and the co-ordination of the various muscle systems. PROFESSORS CHASE, MANLEY AND PASZTOR

177-390B. FUNDAMENTALS OF PHYSIOLOGICAL ACTION. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-205D, 177-206D, or permission of instructor.) Biophysical basis of physiological mechanisms mainly as applied to zoological material. Surface phenomena and gas layers; ionic phenomena; electrokinetic effects in biological material; organic semiconductors; pressure sensitivity; photosensitization, calcification in shell, bone and teeth, and properties of artificial membranes. PROFESSOR DIGBY

177-391A. THE STUDY OF SIMPLE BEHAVIOUR. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-205D, 177-206D.) The experimental study of the behaviour of lower animals.
PROFESSOR STEVEN

177-392B. INTRODUCTION TO ANIMAL BEHAVIOUR. (3 Credits; 2 hours lectures, 2 hours tutorial; *Prerequisite:* 177-205D or permission of instructor.) An introduction to the concepts of behaviour as expressed by zoologists, including a study of stimulus patterns and recognition, movement sequences, motivation, learning, social behaviour, communication and the development and evolution of behaviour.
PROFESSORS LEMON AND MADISON

177-394B. LABORATORY IN ETHOLOGY OF HIGHER ANIMALS. (3 Credits; *Prerequisites:* 177-392A; permission of instructor.) A laboratory course based on projects whereby students observe the behavior of vertebrate animals. Primarily for students enrolled in Animal Behavior Major Program.
PROFESSORS LEMON AND MADISON

177-415B. LIGHT AND ELECTRON OPTICAL METHODS IN BIOLOGY. (3 Credits; 1 hour lecture, 6 hours laboratory; *Prerequisite:* 177-313B or permission of instructor.) A practical introduction to the use of sophisticated microscopical research techniques and instruments.
PROFESSORS MAIER AND BOOTHROYD

177-417A. DEVELOPMENTAL MAMMALIAN GENETICS. (3 Credits; lectures and conferences; *Prerequisites:* 180-204A, 180-222A, B; 177-274A, B (E27A, B), 177-303A, 177-310B; 177-372B recommended; or permission of instructor.) An advanced course for final year students where the main emphasis will be on experiments where gene differences altering development or environmentally-induced differences in embryonic development throw light on the processes of normal mammalian development.
PROFESSOR TRASLER

177-422D. CURRENT TOPICS IN MOLECULAR GENETICS. (3 Credits, may be combined with 177-478B, 3 Credits; irregular schedule of seminars or conferences; *Prerequisites:* 177-274A, B (E27A, B), 177-301A, B; 177-310B recommended.) Investigation and discussion of recent advances in molecular genetics and their relevance to studies of various problems.
PROFESSORS KAFER-BOOTHROYD AND BUSSEY

177-427A. ECOSYSTEMS. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisite:* 177-305A; 189-231A, B.) A study of ecological systems with emphasis on regulation, productivity, energy and nutrient cycling, ecological efficiencies. Systems analysis. Applied aspects.
PROFESSOR AUCLAIR

177-429A. PHYSIOLOGICAL PLANT ECOLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 177-305A; 177-357A recommended; and permission of instructor.) A consideration of physiological responses and adaptations of plants to their environment. Contemporary approaches to the measurement and study of relevant physiological and micro-environmental parameters will also be presented.
PROFESSOR OECHEL

177-430A. LIMNOLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory or field trip; *Prerequisites:* 177-305A and permission of instructor.) A study of the physical, chemical and biological characteristics of fresh-water, with emphasis on the role of the plankton in the economy of the lakes.
PROFESSOR KALFF

177-440A. MARINE ENVIRONMENT. (3 Credits; 3 hours lectures, occasional laboratory sessions; *Prerequisite:* 177-305A; 177-348D can be taken concurrently.) An introduction to the physical and chemical factors of the Marine environment; the main ecological divisions of the ocean; history and methods of marine research.
PROFESSORS LALLI AND DUNBAR

177-441B. BIOLOGICAL OCEANOGRAPHY. (3 Credits; 3 hours lectures, occasional laboratory periods; *Prerequisite:* 177-440A.) An ecological account of marine populations and their relationship to the physical and chemical environment; the dynamics of the marine plankton and the levels of production in different regions. Marine biogeography.
PROFESSORS LEWIS AND DUNBAR

177-465B. TOPICS IN PLANT BIOCHEMISTRY. (3 Credits; Lectures and discussion; *Prerequisites:* 177-201D; 177-303A, 507-352D recommended.) A review by lectures, seminars and discussion of important advances in recent years, e.g. molecular structures of macromolecules, biosynthetic processes, mechanisms of hormone action, metabolic regulation.
PROFESSOR MacLACHLAN AND DR. VERMA

177-471B. HUMAN BIOCHEMICAL GENETICS. (4 Credits; 3 hours lectures with some student participation; *Prerequisites:* 177-201D, 177-274A, B (177-E27A, B); 180-302A; 189-231A, B.) An up-to-date and comprehensive account of the biochemical aspects of human genetics, and relationship of this knowledge to broader questions including evolution, eugenics and treatment of genetic disease.
PROFESSORS GOLD, PINSKY, SCHULMAN AND SCRIVER

177-477A. INDEPENDENT STUDIES IN BIOLOGY. (3 Credits; open to U2 and U3 students only; *Prerequisite:* Projects have to be arranged individually with instructors.) Research or reading projects, permitting independent study under the guidance of a staff member specializing in the field of interest.
STAFF

177-478B. INDEPENDENT STUDIES IN BIOLOGY. (3 Credits; open to U2 and U3 students only; *Prerequisite:* Projects have to be arranged individually with instructors.) Research or reading projects, permitting independent study under the guidance of a staff member specializing in the field of interest. STAFF

177-479D. INDEPENDENT STUDIES IN BIOLOGY. (9 Credits; 8-12 hours per week laboratory project, selected lectures, and seminars; *Prerequisites:* Restricted to students in Biology Major and Honours Programs. A written proposal must be prepared and approved by a committee composed of 2 instructors of the student's field of interest plus one from the Curriculum Committee, prior to registration.) An integrated program of study designed to meet the needs and interests of the student, and incorporating reading and research projects, seminars and/or attendance of selected lectures. STAFF

177-480D. INDEPENDENT STUDIES IN BIOLOGY. (12 Credits; 10-15 hours per week, laboratory project, selected lectures and seminars; *Prerequisites:* Restricted to students in Biology Major and Honours Programs. A written proposal must be prepared and approved by a committee composed of 2 instructors of the student's field of interest plus one from the Curriculum Committee prior to registration.) An integrated program of study designed to meet the needs and interests of the student, and incorporating reading and research projects, seminars and/or attendance of selected lectures. STAFF

177-487B. COMPARATIVE METABOLIC PHYSIOLOGY. (3 Credits; 2 hours conference, laboratory demonstration; *Prerequisite:* 177-385B.) A seminar organized around comparative aspects of endocrine control of metabolism. Detailed topics to vary from year to year.
PROFESSOR MARSDEN

177-488B. ADVANCED NEUROBIOLOGY. (3 Credits; 2 hours seminar; *Prerequisite:* 177-386B or permission of instructor.) Discussion primarily of important current research. Topics emphasize cellular neurophysiology and the functional organization of nervous systems. Includes both vertebrate and invertebrate material. PROFESSORS CHASE AND MANLEY

177-493B. ADVANCES IN ANIMAL BEHAVIOUR. (3 Credits; 2 hours seminar; *Prerequisite:* Permission of instructor.) A senior course reviewing topics of current interest, ranging from the behaviour of lower invertebrates to social interactions of higher vertebrates.
PROFESSORS LEMON, MADISON AND STAFF

CHEMISTRY (180)

Otto Maass Chemistry Building, Room 312, Telephone 392-4469

Chemistry is both a pure science offering its students a challenging intellectual pursuit and simultaneously, an applied science whose technology is of fundamental importance to our economy and society. The modern chemist seeks an understanding of the structure and properties of atoms and molecules. He uses this knowledge to predict and interpret the properties and transformations of matter and the energy changes that accompany those transformations. Many of the concepts of Physics and the methods of Mathematics are basic to Chemistry, while Chemistry is in turn of fundamental importance to many other disciplines such as: the Biological and Medical Sciences, Geology, Metallurgy, and others.

A degree in Chemistry can lead to a wide variety of professional vocations. The large science-based industries (petroleum refining, plastics, pharmaceuticals, etc.) all employ chemists in research and development and in quality control. Many federal and provincial departments and agencies employ chemists in research and testing laboratories. These kinds of positions are expected to increase with the currently growing concern for the environment and for consumer protection. A background in chemistry can also be useful as a basis for advanced study in other related fields, such as medicine, and the biological sciences, or for business career, a B.Sc. in Chemistry can profitably be combined with a master's degree in Business Administration.

Chemistry courses at the university level are traditionally divided into four areas of specialization: 1) organic chemistry, dealing with the compounds of carbon; 2) inorganic chemistry, concerned with the chemistry and compounds of elements other than carbon; 3) analytical chemistry, which deals with the identification of substances and the quantitative measurement of their compositions; and 4) physical chemistry, which treats the physical laws and energetics governing chemical reactions. Naturally there

is a great deal of overlap between these different areas, and the boundaries are becoming increasingly blurred. Other important fields of chemistry in which undergraduate courses are offered include: polymer chemistry, radiochemistry, and biological chemistry.

After a general course at the collegial level, courses in organic, inorganic, analytical and physical chemistry are offered through the university years. Naturally, since chemistry is an experimental science, laboratory classes accompany most of the undergraduate courses.

There are two main programs in Chemistry, Honours and Major. The Honours program is intended primarily for students wishing to pursue graduate studies in Chemistry. While the Major program is somewhat less specialized, it is still recognized as sufficient training for a profession in Chemistry. It can, however, also lead to graduate studies although an additional qualifying year may be necessary. In addition, there are also a number of Faculty programs available (see page 169). Interested students may inquire about these at the Department Office.

Core Curriculum in Chemistry

The Core Curriculum in Chemistry consists of 35 specified credits in chemistry to which must be added a minimum of 14 credits in Mathematics and Physics beyond the CEGEP level. A further 14 credits are optional courses at the CEGEP or college equivalent level. It is hoped that the majority of candidates for honours and majors in chemistry will have taken at least six of these credits at the collegial level.

The Core Curriculum is completed in the first two university years by Honours students, and is taken over three university years by Major students. Because students may have had individual variations in their CEGEP programs, the particular core courses taken in U1 and U2 will vary. However, the program outlined below would be followed by a student wishing to take honours in chemistry, and having completed the equivalent of 180-212, B (4 Credits), and 180-213A, B (3 Credits) at the CEGEP level.

Chemistry: *U1:* 180-222A, B (4 Credits), 180-223A, B (3 Credits), 180-281A (3 Credits), 180-257D (4 Credits), 180-253B (2 Credits), 180-273A (1 Credit).

U2: 180-352A, B (3 Credits), 180-372A, B (3 Credits), 180-392A, B (3 Credits), 180-381B (3 Credits), 180-387D (4 Credits), 180-356A (2 Credits), 180-353A (1 Credit), 180-373B (2 Credits), 180-383B (1 Credit), 180-363D (3 Credits).

Physics: *U1:* 198-232B (4 Credits).

U2: 198-339B (4 Credits).

Mathematics: *U1:* 189-222A, B (3 Credits), 189-223A, B (3 Credits).

U2: 189-315A, B (3 Credits).

Honours students who have had the equivalent of additional core courses may also be able to take some U3 Honours chemistry courses in their U2 year.

Honours in Chemistry

The Honours program in chemistry will be the Core Curriculum taken in U1 and U2 and an additional 18 credits in chemistry elected from the U3 honours courses. Of the 18 credits 198-465D, MATHEMATICAL PHYSICS FOR CHEMISTS, will be acceptable for four credits. This program applies to students who will graduate in 1974 and successive years. Admission to the Honours program is by application to the Chemistry Department.

A research project is available as an option to U3 honours chemistry students graduating in 1974 and thereafter. Further information on this project may be had by inquiring at the Chemistry Department office.

HONOURS IN CRYSTALLOGRAPHY

(See under Department of Geological Sciences.)

Major in Chemistry

The Major in Chemistry is the Core Curriculum taken over the three university years. All courses chosen outside the Core Curriculum will be free electives. Students intending to major in chemistry may, on application to the Department, be granted permission to take U3 Honours courses in Chemistry as part of their electives. Admission to the Major program is by application to the Chemistry Department.

Faculty Programs in Chemistry

Faculty programs in Chemistry may be constructed from the E2/U1 courses and the general courses of U2 and U3 intended for these students. There are courses with a total of 66 credits from which Faculty Programs may be assembled. (See pages 169-172.)

Six courses in general analytical chemistry, 180-207A, -217A, -227B, -237B, -247A, and -267B, are listed to permit the synthesis of an individualized program in chemical analysis.

Awards

Attention is drawn to the following awards for which students in Chemistry are eligible: C.A.T.C.C. Scholarship, McGill Pharmacy Alumni Bursary, C.I.C. Prize, Dr. William H. Hatcher Prize, Anne Molson Prize, S.C.I. Student Prize, Corporation of Professional Chemists of Québec Prize, S.C.I. Merit Award, Clifford B. Purves Prize and Frederick J. Lemaistre Award. For further information students are referred to the Scholarships Announcement.

Course Descriptions

180-E10B. GENERAL CHEMISTRY. This course is no longer given. For a description see Chemistry 180-110A below.

180-E20A. GENERAL CHEMISTRY. (3 Credits; 3 lectures, 1 tutorial; *Prerequisite:* Chem. E10B, Math. E14B, and Phys. E11B or E15B; *Co-requisites:* Math. E15A if not previously taken and Phys. E21A — Physical Science students only.) A continuation of Chemistry E10B. Required of all collegial level science students. A study of the simpler aromatic organic molecules, and of the fundamental principles of physical chemistry.

PROFESSORS ONYSZCHUK, EDWARD, GROSSER, SIMKIN EISENBERG AND STAFF

LABORATORY: (2 hours). Illustrative experiments.

PROFESSOR GROSSER AND MRS. BIRNIE

180-E22A, B. ORGANIC CHEMISTRY. (4 Credits; 3 hours lectures; *Prerequisite:* Chem. E20A.) A survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis and spectra. (*Text:* To be announced.)

PROFESSORS HARPP AND PERLIN

LABORATORY: (3 hours). Illustrative experiments.

PROFESSORS HARPP AND PERLIN AND MRS. HEYGE

180-E23A. GENERAL CHEMISTRY. (3 Credits; 3 lectures, 1 tutorial; *Prerequisite:* Chem. E13B.) A continuation of Chemistry E13B. It is intended primarily for students in nursing and physical therapy and those who do not plan to take chemistry courses beyond the U1 level. This course serves as a prerequisite for Chemistry E28B only.

PROFESSORS ONYSZCHUK AND JUST

LABORATORY: (2 hours). Illustrative experiments. MRS. BIRNIE

180-E24A, B. PHYSICAL CHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* Chem. E20A, Math. E14A or E14B and E15A or E15B or E16A and E17B.) First law of thermodynamics, enthalpy, thermochemistry, bond energies. Second law of thermodynamics: the entropy and free energy functions. Chemical and thermodynamic equilibrium states. Phase rule. Colligative properties of ideal solutions. Electrochemistry, electrochemical cells. Liquid and liquid surfaces. Chemical kinetics. PROFESSORS EISENBERG AND PATTERSON

180-E28B. ORGANIC CHEMISTRY. (3 Credits; 3 lectures, 1 tutorial; *Prerequisite:* Chem. E23A.) A course similar to Chem. E22B. It is integrated with Chem. E23A and cannot be taken by itself. It is intended primarily for students in nursing and physical therapy and those who do not plan to take chemistry courses beyond the U1 level. PROFESSOR JUST

LABORATORY: (3 hours). Illustrative experiments. MRS. HEYGE

180-110A. GENERAL CHEMISTRY I. (3 Credits; 3 lectures, 1 tutorial; *Prerequisites/Co-requisites:* College level mathematics and physics.) A study of the fundamental principles of atomic structure, valence theory, periodic table, and the structures and reactions of the simpler aliphatic molecules. PROFESSOR ONYSZCHUK AND STAFF

LABORATORY: (2 hours). Illustrative experiments.
PROFESSOR GROSSER AND MRS. BIRNIE

180-120B. GENERAL CHEMISTRY II. (3 Credits; 3 lectures, 1 tutorial; *Prerequisite:* Chemistry 110A or E10B.) For course description see 180-E20A.
PROFESSOR ONYSZCHUK AND STAFF

180-200B. PHYSICAL SCIENCE II. (3 Credits; 2 lectures; 1 conference.) This course is intended for non-science students at any level; it is not open to students who have taken (or are taking) courses in Physics or Chemistry other than Physics 198-200A. The backbone of this course is a group of short programs in basic chemistry. In addition, the individual student selects a topic in which he delves more deeply into some aspect of chemical science or the moral, social or philosophical implications of chemical science. PROFESSOR ———

180-201A, B. MODERN INORGANIC CHEMISTRY I. (3 Credits; no lectures, modular course; *Prerequisites:* Chem E10B and E20A or equivalent courses.) The course deals with the chemistry of the main group elements and their role in our everyday lives. The course is based on a series of self-study modules; a minimum of three background modules (on atomic structure and chemical bonding) and five other modules selected by the student must be completed. PROFESSOR BUTLER

180-204A. INTRODUCTORY PHYSICAL CHEMISTRY FOR BIOLOGICAL SCIENCE STUDENTS. I. (3 Credits; 3 lectures; *Prerequisites:* Chem E20A or equivalent and one full course in calculus.) Similar to 180-213A, B. An emphasis is placed on the use of biological examples to illustrate the principles of Physical Chemistry. The relevance of physical chemistry to biology is stressed. This course may not be preceded by 180-E24A, B.
PROFESSOR GALLEY

180-207A. GENERAL ANALYTICAL CHEMISTRY. I. (1 Credit; 1 lecture; *Prerequistes:* Chem E10B and E20A or equivalent courses.) Lecture portion of an individualized program in analytical chemistry. Lecture sequences and laboratories (if any) to be selected by student and his adviser. PROFESSOR FRESCO

180-212A, B. INTRODUCTORY ORGANIC CHEMISTRY. I. (4 Credits; 3 lectures; *Prerequisites:* Chem E10B and E20A or equivalent courses.) A survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis and spectra. This course may not be preceded by 180-E22A, B.
PROFESSORS HARPP AND PERLIN

LABORATORY: (3 hours). Illustrative experiments.
PROFESSORS HARPP AND PERLIN AND MRS. HEYGE

180-213A, B. INTRODUCTORY PHYSICAL CHEMISTRY. I. (3 Credits; 3 lectures; *Prerequisites:* Chem E20A or equivalent; Math E14A or B and Math E15A or B, or Math E16A, E17B.) First law of thermodynamics, enthalpy, thermochemistry, bond energies. Second law of thermodynamics: the entropy and free energy functions. Chemical and thermodynamic equilibrium states. Phase rule. Colligative properties of ideal solutions. Electrochemistry, electrochemical cells. Liquid and liquid surfaces. Chemical kinetics. This course may not be preceded by 180-E24A, B. PROFESSORS EISENBERG AND PATTERSON

180-214B. INTRODUCTORY PHYSICAL CHEMISTRY FOR BIOLOGICAL SCIENCE STUDENTS. II. (3 Credits; 3 lectures; *Prerequisites:* 180-213A, B or 180-204A or equivalent.) Similar to 180-223A, B. An emphasis is placed on the use of biological examples to illustrate the principles of physical chemistry. The relevance of physical chemistry to biology is stressed.
PROFESSOR GALLEY

180-217A, B. GENERAL ANALYTICAL CHEMISTRY LABORATORY. I. (1 Credit; 3 hours; *Prerequisites:* Chem E10B and E20A or equivalents.) Laboratory portion of an individualized program in analytical chemistry. Laboratory experiments to be selected by student and his adviser. PROFESSOR FRESCO AND MR. DROVER

180-222A, B. INTRODUCTORY ORGANIC CHEMISTRY. II. (4 Credits; 3 lectures; *Prerequisite:* Chem. E22A, B or 212A, B.) Modern spectroscopic techniques for structure determination. The chemistry of alkyl halides, alcohols, ethers, carbonyl compounds and amines with special attention to mechanistic aspects. Special topics. PROFESSORS HARPP AND PERLIN

LABORATORY: (3 hours). Illustrative experiments.
PROFESSORS HARPP AND PERLIN AND MRS. HEYGE

180-223A, B. INTRODUCTORY PHYSICAL CHEMISTRY. II. (3 Credits; 3 lectures; *Prerequisite:* 180-213A, B or equivalent.) Schroedinger Wave Equation; Energy states of atoms; Theory of chemical bonding; Atomic and Molecular structure; Spectroscopy; Electrical and magnetic properties of molecules; statistical thermodynamics. PROFESSOR SIMKIN

180-227B. GENERAL ANALYTICAL CHEMISTRY. II. (1 Credit; 1 lecture; *Prerequisite:* 180-207A.) Lecture portion of an individualized program in analytical chemistry. Lecture sequences and laboratories (if any) to be selected by student and his adviser. PROFESSOR FRESCO

180-232B. INTRODUCTORY ORGANIC CHEMISTRY FOR NURSES. I. (4 Credits; 3 lectures; *Prerequisites:* Chem E13B and E23A or equivalents.) Similar to 180-212A, B but with a biological emphasis for students who will not take chemistry courses beyond the U-1 level. This course may not be preceded by E22A, B. PROFESSOR JUST

LABORATORY: (3 hours). Illustrative experiments. MRS. HEYGE

180-237B. GENERAL ANALYTICAL CHEMISTRY LABORATORY II. (1 Credit; 3 hours; *Prerequisites:* Chem E10B and E20A or equivalents.) Laboratory portion of an individualized program in analytical chemistry. Laboratory experiments to be selected by student and his adviser. PROFESSOR FRESCO AND MR. DROVER

180-247A. GENERAL ANALYTICAL CHEMISTRY LABORATORY III. (2 Credits; 6 hours; *Prerequisites:* Chem E10B and E20A or equivalents.) Laboratory portion of an individualized program in analytical chemistry. Laboratory experiments to be selected by student and his adviser. PROFESSOR FRESCO AND MR. DROVER

180-253B. ADVANCED CHEMICAL THERMODYNAMICS. (2 Credits; 2 hours; *Prerequisite:* 180-213A, B or equivalent; *Co-requisite:* 180-273B.) For Honours and Major Chemistry Students. Thermodynamics of non-electrolyte solutions: partial molar volumes and enthalpies; chemical potentials; regular solution theory; equilibrium between solution and vapour phase; standard states, activities, activity coefficients; phase rule; phase diagrams. Electrolyte solutions: conductivity of solutions; electrode processes; transport numbers; thermodynamics of electrolyte solutions; electromotive force of cells. PROFESSOR PATTERSON

180-257B. INTRODUCTORY ANALYTICAL CHEMISTRY. (4 Credits; 1 lecture, 4 hours laboratory and 1 homework tutorial; *Prerequisites:* Chem E10B and E20A or equivalents.) For Honours and Major Chemistry Students. A rigorous survey of analytical chemistry including theory and practice or representative gravimetric, volumetric and instrumental methods. PROFESSOR FRESCO AND MR. DROVER

180-267B. GENERAL ANALYTICAL CHEMISTRY LABORATORY. IV. (2 Credits; 6 hours; *Prerequisites:* Chem E10B and E20A or equivalents.) Laboratory portion of an individualized program in analytical chemistry. Laboratory experiments to be selected by student and his adviser. PROFESSOR FRESCO AND MR. DROVER

180-273A. CHEMICAL KINETICS. (1 Credit; 1 lecture; *Prerequisite:* 180-204A, B or 180-213A, B or equivalent.) For Honours and Major Chemistry Students. Other students with permission of the lecturer. Order, molecularity, reaction mechanisms, first, second and third order rate constants. Determination of order, effect of temperature on rate, activated state theory. Collision theory. Reactions in solution, homogeneous catalysis. Reaction at surfaces, heterogeneous catalysis, poisoning. PROFESSOR GROSSER

180-281A. CHEMISTRY OF THE MAIN GROUP ELEMENTS. (3 Credits; 3 lectures; *Prerequisites:* Chem E10B and E20A or equivalents.) For Honours and Major Chemistry Students. Modern concepts of atomic structure, chemical bonding and stereochemistry will be reviewed and extended to include symmetry elements, symmetry operations, and point groups. This will be followed with a systematic survey of the main group elements and their compounds, with emphasis on trends in physical and chemical properties, molecular geometry, and mechanisms of reactions. PROFESSOR ONYSZCHUK

180-300A. HISTORY OF CHEMISTRY I. (3 Credits; 2 lectures, 1 seminar; Admission to course by permission of lecturer; See page 153, Science for Arts students.) An introduction to the history of chemistry, pure and applied, from the earliest to modern times. PROFESSOR NICHOLLS

180-301B. MODERN INORGANIC CHEMISTRY II. (3 Credits; 3 lectures; *Prerequisites:* Chem E10B and E20A or equivalent courses.) Modern concepts of metallic bonding and metallic crystals will be reviewed and extended to include descriptions of crystal field theory and molecular orbital theory of coordination compounds. The chemistry of transition metal coordination compounds will be treated in some detail from the viewpoint of structural, chemical, and mechanistic behavior. PROFESSOR BUTLER

180-302A. BIO-ORGANIC CHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* 180-212A, B and 180-222A, B.) Application of the concepts of organic chemistry to selected biological systems. STAFF

180-307B. THE ANALYTICAL CHEMISTRY OF POLLUTANTS. (2 Credits; 2 lectures; *Prerequisites:* One course in analytical chemistry and one in physical chemistry.) Description of current analytical practices in air and water pollution; critical evaluation of the reliability of the methods, with particular emphasis on interfering substances; rudiments of automated instrumentation, toxicological analysis as it relates to pollution. PROFESSORS CAVE AND FRESCO

180-310B. HISTORY OF CHEMISTRY II. (3 Credits; 2 lectures, 1 seminar; *Prerequisite:* Chemistry 180-300A. See page 153, Science for Arts students.) A continuation of the study of the history of chemistry, from the earliest to modern times. PROFESSOR NICHOLLS

180-311A. AN INTRODUCTION TO NUCLEAR CHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* Chemistry E10B and E20A or equivalents.) The basic concepts of nuclear chemistry will be described mainly in a qualitative way. Such topics as forces within nuclei, theories of nuclear structure, radioactive decay, nuclear reactions and fission, particle accelerators and reactors, radiocarbon dating, and tracer technique will be treated. PROFESSOR YAFFE

180-313A. INTERMEDIATE PHYSICAL CHEMISTRY I. (3 Credits; 3 lectures; *Prerequisite:* 180-223A, B or 180-214A.) A survey course in physical chemistry beyond the introductory level. PROFESSOR———

180-323B. INTERMEDIATE PHYSICAL CHEMISTRY II. (3 Credits; 3 lectures; *Prerequisite:* 180-223A, B or 180-214A.) A survey course in physical chemistry with a special emphasis on spectroscopy. PROFESSOR———

180-331A. INORGANIC CHEMISTRY OF THE SOLID STATE. (3 Credits; 3 lectures; *Prerequisites:* E10B and E20A or equivalent.) Primarily, but not exclusively, for students in the Faculty of Engineering. Electronic structure and properties of the elements in relation to the Periodic Table. The Solid state: structure, bonding, magnetic properties of metals and alloys. Descriptive chemistry of the metals. PROFESSOR HOGAN

180-352A, B. STRUCTURAL ORGANIC CHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* 180-212A, B and 180-222A, B.) For Honours and Major Chemistry Students. Modern methods of structure determination, chemical and spectroscopic techniques; stereochemistry. PROFESSORS CHAN AND JUST

180-353A. SURFACE CHEMISTRY. (1 Credit; 1 lecture; *Prerequisites:* 180-253B and 180-273B.) For Honours and Major Chemistry Students. The nature of surfaces. The thermodynamics of surfaces. The effect of temperature and pressure on surface energies. The wetting of solids. Binary liquid systems and the surface excess. Physi- and chemi-sorption of vapours on solids. PROFESSOR———

180-356A. INTRODUCTORY QUANTUM CHEMISTRY. (2 Credits; 2 lectures; *Prerequisites:* 180-253B and 180-273A.) For Honours and Major Chemistry Students. A semi-mathematical course dealing with the development of the quantum theory of chemistry. Commences at the foundations of atomic theory, the electron in a constant potential, the hydrogen atom and the many electron atom and then covers the wave functions of many electron systems, angular momentum and the molecular orbital and valence bond theories of chemical structures and properties. PROFESSOR WHITEHEAD

180-362A. ADVANCED ORGANIC LABORATORY. (2 Credits; 4 hours; *Corequisite:* 180-352 or 180-372.) An advanced laboratory of experiments related to the theoretical principles, synthetic methods and instrumental techniques of modern organic chemistry. The laboratory uses a modular format of self-paced and self-guided instruction. A program of modules is selected in consultation with the instructor. PROFESSOR CHAN

180-363D. PHYSICAL CHEMISTRY LABORATORY. (3 Credits; 3 hours; *Prerequisites:* 180-253B and 180-273B.) For Honours and Major Chemistry Students. Selected experiments to illustrate the application of physical chemical principles of real systems. PROFESSOR WINKLER AND DR. BROWN

180-372A, B. SYNTHETIC ORGANIC CHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* 180-212A, B and 180-222A, B.) For Honours and Major Chemistry Students. Synthetic methods in organic chemistry. PROFESSORS CHAN AND JUST

180-373B. MOLECULAR SPECTROSCOPY. (2 Credits; 2 lectures; *Prerequisite:* 180-356A.) For Honours and Major Chemistry Students. A general survey of the principles of molecular spectroscopy, including electronic, vibrational, and rotational spectroscopy, nuclear and electron spin resonance and Mössbauer effect. PROFESSOR GILSON

180-381B. CHEMISTRY OF THE TRANSITION ELEMENTS. (3 Credits; 3 lectures; *Prerequisite:* 180-281A.) For Honours and Major Chemistry Students. The history of transition chemistry, coordination numbers and geometry, nomenclature and symmetry. Crystal field theory will be described and applied to problems in spectroscopy, magnetochemistry, thermodynamics and kinetics. Molecular orbital theory is applied to carbonyl and organometallic compounds. PROFESSOR HARROD

180-383B. INTRODUCTORY STATISTICAL MECHANICS. (1 Credit; 1 lecture; *Prerequisite:* 180-356A; *Corequisite:* 180-373B.) For Honours and Major Chemistry Students. Fundamental assumptions of the statistical method, Maxwell-Boltzmann distribution law. Ideal monatomic, diatomic and polyatomic gases. PROFESSOR EU

180-387D. ANALYTICAL CHEMISTRY. (4 Credits; 1 lecture and 3 hours laboratory; *Prerequisites:* 180-257D and 180-253A.) For Honours and Major Chemistry Students. A rigorous treatment of the theory underlying analytical processes; application of selected techniques, followed by an original project. PROFESSOR CAVE

180-392B. INTEGRATED INORGANIC/ORGANIC LABORATORY. (3 Credits; 8 hours; *Prerequisite:* 180-352; *Corequisites:* 180-381B and 180-372.) An advanced laboratory for Honours and Major Chemistry Students. The laboratory uses a modular format of self-paced and self-guided instruction. A program of modules is selected in consultation with the laboratory staff. The experimental modules consist of projects related to the theoretical principles, synthetic techniques and instrumental methods used in modern organic, inorganic and organometallic chemistry. PROFESSORS CHAN AND HARROD

180-404B. BIOPHYSICAL CHEMISTRY. (3 Credits; 3 lectures; *Prerequisite:* Chemistry 283D.) Molecular weight determination, hydrodynamic and spectroscopic properties of biopolymers. The structure and dynamics of biopolymers and biological systems.
PROFESSORS GALLEY AND MEIGHEN
(Biochemistry)

180-447A. INSTRUMENTAL ANALYSIS. (3 Credits; 2 lectures; 3 hours laboratory.) For Honours Students in Biochemistry only. A survey of instrumental methods of analysis.
PROFESSOR CAVE AND COLLEAGUES

180-452B. PHYSICAL ORGANIC CHEMISTRY. (3 Credits; *Prerequisite:* Chemistry 352D.) Intended primarily for Honours Chemistry Students. PROFESSOR FARRELL

180-455B. INTRODUCTORY POLYMER CHEMISTRY. (3 Credits; *Prerequisite:* Chemistry 303D or 383D.) For Major and Honours students. A survey course on the structure of polymers, kinetics and mechanisms of polymer synthesis; molecular weight distributions; polymer configurations and the thermodynamics of polymer solutions; rubber, elasticity, osmometry and viscosity. PROFESSOR ST. PIERRE

180-457B. INSTRUMENTAL METHODS OF ANALYSIS. (3 Credits; 3 hours laboratory.) For Honours students. Other students with permission of the lecturer. Mass spectrometry; gas chromatography; NMR-ESR spectroscopy; infrared spectroscopy; X-ray diffraction and fluorescence spectrometry; ultracentrifugation; electrophoresis; microscopy; activation analysis, polarography. PROFESSOR CAVE AND COLLEAGUES

180-458A. RADIOCHEMISTRY. (3 Credits.) For Honours students in Chemistry and Biochemistry, Chemistry Majors and other Honours students with permission of the lecturer. Fundamentals of radiochemistry, radiotracer techniques and applications. PROFESSOR YAFFE

180-463A, B. ADVANCED PHYSICAL CHEMISTRY LABORATORY. (3 Credits; 6 hours; *Prerequisite:* Chemistry 383D.) Intended primarily for Honours students. More advanced physicochemical methods of investigating kinetic and thermodynamic properties of gases, liquids, solutions and colloids. PROFESSOR WINKLER

180-475A. CHEMICAL KINETICS. (3 Credits; 3 lectures; *Prerequisite:* Chemistry core.) Kinetic laws, measurement of reaction rates, transition state and collision theory, elementary gas phase reactions. Elementary reactions in solution, reaction mechanisms in solution, reactions on surfaces and in solid state. Heterogeneous catalysis. Complex reactions, homogeneous reactions. PROFESSOR GROSSER

180-476B. QUANTUM CHEMISTRY. (3 Credits; 3 lectures; *Prerequisite:* Chemistry core.) A semi-mathematical course on the development of the quantum theory of chemistry. Commences at the foundations of atomic theory, the electron in a constant potential, the hydrogen atom and the many electron atoms and then covers the wave funcions of many electron systems, angular momentum and the molecular orbital and valence bond theories.
PROFESSOR WHITEHEAD

180-477A. ELECTROANALYTICAL CHEMISTRY. (3 Credits; 2 lectures, 3 hours laboratory; *Prerequisite:* Chemistry 387D.) For Honours Chemistry students. Other students with permission of the lecturer. Mass-transfer processes; theory of electrochemical processes in analytical chemistry; determination of the composition and stabilities of organic and inorganic species in aqueous and nonaqueous solvents. PROFESSORS CAVE AND FRESCO

180-480A, B. FINAL YEAR RESEARCH PROJECT. (3 Credits; Registration by departmental permission only.) A course designed to give Honours students an optional foretaste of research experience. The student will be assigned a project supervisor and a research project at the beginning of the session. The project will consist of a literature survey, experimental work, a written research report and an oral examination. STAFF

180-481A, B. MODERN TOPICS IN INORGANIC CHEMISTRY. (3 Credits; *Prerequisites:* Chemistry 281B and 381B.) Chemistry Honours students only. An introduction to areas of current interest in inorganic chemistry. After several lectures given by staff members, each student will lead a seminar on a mutually agreed upon topic selected at the beginning of the course.
PROFESSORS BUTLER, HOGAN, HARROD AND ONYSZCHUK

180-482A. ADVANCED ORGANIC CHEMISTRY. (3 Credits; *Prerequisite:* Chemistry 352A; Not offered in 1973-74.) Intended primarily for Honours Chemistry students. Synthetic methods in organic chemistry. PROFESSOR JUST

180-485A. SURFACE AND COLLOID CHEMISTRY. (3 Credits; *Prerequisite:* Chemistry 303D or 383D.) A topical course on the physical chemistry of phase boundaries. Topics covered vary from year to year and generally include: properties of surfaces; monolayers; colloidal dispersions; spreading and wetting phenomena; absorption; translational and rotary Brownian motion. PROFESSOR MASON

180-487A. SELECTED TOPICS IN MODERN ANALYTICAL CHEMISTRY. (3 Credits; *Prerequisite:* Chemistry 387D.) Honours Chemistry students. Other students with permission of the lecturer. Current theories of aqueous and nonaqueous solutions, with application to analytical chemistry; recent advances in analytical techniques (topics covered vary from year to year and may include chromatography; applications of kinetics, solvent extraction and thermal analysis) with emphasis on their theoretical basis. PROFESSORS FRESCO AND CAVE

180-490A, B. FINAL YEAR RESEARCH PROJECT. (6 Credits; 16 hours laboratory; Registration by departmental permission only.) For description, see 180-480A, B.

180-491B. ADVANCED INORGANIC CHEMISTRY LABORATORY. (3 Credits; 6 hours; *Prerequisite:* Chemistry 382D.) For Honours Chemistry students only. Advanced techniques for the preparation of inorganic compounds. Investigation of the spectroscopic properties of the compounds prepared. PROFESSOR BUTLER

180-493A. INTRODUCTION TO STATISTICAL THERMODYNAMICS. (2 Credits; 2 lectures; *Prerequisite:* Chemistry core.) Fundamental principles of statistical mechanics; microanonical and canonical ensembles; thermodynamic functions of ideal gases; theories of solids, chemical equilibria; absolute reaction rate theory; Van der Waals gases. PROFESSOR ———

180-497B. ANALYTICAL SPECTROSCOPY. (3 Credits; 2 lectures and 3 hours laboratory; *Prerequisite:* Chemistry 387D.) For Honours Chemistry students. Other students with permission of the lecturer. Spectrophotometric measurements and sources of error. Flame photometry, including emission and atomic absorption spectral determination of the composition and stabilities of organic and inorganic species in aqueous and nonaqueous solvents; Tanabe-Sugano diagrams. PROFESSORS FRESCO AND CAVE

COMPUTER SCIENCE (308)

Burnside Hall. First floor. Departmental office (undergraduate activities), Room 214. Telephone: 392-5803.

Computer Science is a subject with both practical and theoretical importance. It has strong links with many other disciplines, particularly with Mathematics in the field of numerical analysis, with electrical engineering in the field of computer hardware and with management in the field of large scale data processing systems.

The courses offered are designed to satisfy the different needs of students from those who will be involved in computer applications in their own area of specialization to those who wish to specialise in Computer Science perhaps with a view to proceeding to Graduate School. Some graduate courses in Computer Science are available to suitably qualified senior undergraduates. For further information, see the Faculty of Graduate Studies and Research Calendar.

McGill possesses two powerful computers, providing both a batch processing and time sharing service to the University. Every effort is made to give a student as much practical experience with the computing facilities as possible.

Although the School of Computer Science does not offer any programs in the Faculty of Science, the Mathematics Department has a major program with a Computer Science option in which Computer Science courses form an integral part. Special programs involving Computer Science are also available in the Faculty of Management and in the Department of Electrical Engineering. For further details, the Calendars of the Faculties of Management and Engineering should be consulted.

Course Descriptions

308-100A, B. INTRODUCTION TO COMPUTING. (3 Credits; No scheduled lectures; No prerequisites.) A beginning course in computing designed to introduce general concepts in computing as well as a basic working knowledge of the programming language FORTRAN. The course consists of 12 modules, containing video tape lectures, module booklets, interactive terminal sessions and assignments to be run on the computer. The student learns at his own pace. The only formal lecture is held the first day of a new semester. MISS FOX

308-200A, B. INTRODUCTION TO COMPUTER SCIENCE. (3 Credits; 2 hours; *Prerequisite:* Mathematics 189-202A, B or equivalent, knowledge of linear algebra is desirable.) Number systems; data representation; algorithm design; FORTRAN; computer methods including searching, sorting, solution of equations, numerical integration and matrix manipulation. This course is designed for students in Mathematics and the Physical Sciences. STAFF

308-210A, B. COMPUTER STRUCTURE AND ASSEMBLY LANGUAGE PROGRAMMING. (3 Credits; 2 hours; *Prerequisite:* 308-200A, B.) Computer structure, machine language, instruction execution, addressing techniques, and digital representation of data. Symbolic coding and assembly systems, macro definition, program segmentation and linkage. PROFESSOR RATZER

308-220A, B. DIGITAL COMPUTING FOR STATISTICAL ANALYSIS. (3 Credits; 3 hours; *Prerequisite:* An introductory course in Statistics, e.g. Psychology 204A.) Characteristics of a higher level programming language (FORTRAN). Methods for computer solution of statistical problems. Intended for students in the Biological and Social Sciences. MISS FOX

308-230A. COMPUTERS IN DATA PROCESSING. (3 Credits; 2 hours; *Prerequisite:* Computer Science 308-200A, B or equivalent or programming experience.) Commercial uses of computers; COBOL; OS/360 facilities including job control language, sort/merge; file processing; comparison with other data processing languages. MR. PAUL

308-300A, B. PROGRAMMING LANGUAGES. (3 Credits; 2 hours; *Prerequisite:* 308-210A, B.) Formal definition of programming languages including specification of syntax. Properties of algorithmic languages including PL/1, APL and GPSS. Introduction of theory of compilers and interpreters. Computer solution of non-numerical problems. PROFESSOR THORPE

308-310B. COMPUTER SOFTWARE ORGANIZATION AND DESIGN. (3 Credits; 2 hours; *Prerequisite:* 308-300A, B.) Batch processing, multiprogramming, job control languages, linkage editing, file system organization, time-shared systems, virtual memory. PROFESSORS RATZER, VALENTI

308-315A. INFORMATION STRUCTURES. (3 Credits; 2 hours; *Prerequisite:* Computer Science 308-210A, B.) Storage of arrays, applications to special matrices and scientific computation; queues and stacks; applications to compiler writing; sorting and searching; introduction to list processing and symbolic manipulation. PROFESSOR MERRETT

308-320B. FILES AND DATA BASES. (3 Credits; 2 hours; *Prerequisite:* 308-315A; recommended prerequisite: 308-300A, B.) The course will teach the PL/1 language and use it in data processing applications. Topics: PL/1 essentials; data sets, files and JCL; sequential files: printing, sorting, updating; indexed sequential files; direct files; files of structured data; data bases. PROFESSOR MERRETT

GEOGRAPHY (183)

Burnside Hall, Dept. Chairman, Room 510, Telephone: 392-5489.

General Inquiries at Departmental Office, Room 513, Telephone: 392-5700.

Geography is a discipline which bridges the gap between Science and Arts subjects at university. Its central theme is the study of man and the processes which affect him in his physical and social environments. Both a specialist and an interdisciplinary approach are open to students, who, while taking several courses in common, may proceed towards either the B.Sc. or B.A. degrees.

The challenges facing students in geography and the areas for investigation are wide ranging. Current projects include:

A mathematical analysis of air travel in Canada.
Land use, soils and water quality in Quebec.
Weather and human comfort in Montreal.
Social and economic utilization of Arctic resources.
Location of health and welfare facilities for urban planning.
Tourism and recreational land use in developed and developing countries.

Graduates have found career opportunities in accordance with their level of specialization and interests. Many segments of industry, and all levels of education and government employ geographically trained students. The Federal Departments of Environment, Energy, Mines and Resources, Urban Affairs, External Affairs, Regional Economic Expansion, and those dealing with Parks, Native Peoples and Land Use have

areas where geographers may find applications for their skills. Some jobs are in the remote or wilderness areas of various countries, but others are in the offices and laboratories of large urban centres and in quiet rural countrysides. Within these careers, specialization may be very diverse, and include climatology, regional and city planning, industrial location, air photo interpretation or map analysis, and cultural and biological problems in regional development.

The interaction of man with various aspects of his environment is seen in the emphasis given to this interaction throughout many of the courses and programs offered in the department. Some courses, however, focus on a range of local, regional and world problems such as air and water quality or food/population and economic development relationships. In others the emphasis is on the study of physical, economic and cultural processes in a geographical framework. Other courses centre upon methods of geographical analysis.

Students in Geography should focus their studies around groups of geography courses which are informally organized into sequences such as the following:

Introductory	183-E10A, -E12B, -E11D, -203D.
Urban	183-216A, -217B, -314A, -316A, -331A, -346B, -412B
Economic	183-301D, -315B, -319A, -411A
Cultural-Ecological	183-214A, -215B, -300B, -304A, -317A, -414A, -481A
Geomorphology	183-271A, -272B, -471D
Hydrology	183-322A, -323B
Climatology	183-321A, -324B, -422A, -423B
Biogeography and Soils	183-302D, -305A, -307B, -451D
Regional	183-303D, -309B, -310A, -402D
Technical (Cartography, Air Photo, Statistical Analysis, Research Methods)	183-201A, -202B, -306A, -308B, -350B, -351A, -482D, -484D

The recommended combinations which lead to these and other interests are outlined in the patterns of courses within the 1) Faculty Program, 2) Major in Geography, and 3) Honours in Geography, which lead to either the B.A. or to the B.Sc. degree.

Faculty Programs

For details see Faculty Programs, page 169.

There are no specific prerequisites to these faculty programs; courses that should be taken in U1 are underlined. Any deficiencies in background should be taken concurrently as one of the optional selections.

Advisers: Professor R. Wilson, Room 627, Burnside Hall, Telephone: 392-8223.
Professor J. Parry, Room 322, Burnside Hall, Telephone: 392-5496.

Major in Geography

Students are required to take a minimum of 42 credits in Geography and 12 credits in other approved courses in Geology, Meteorology, or Biology.

Adviser: Professor R. N. Drummond, Room 310, Burnside Hall, 392-5497.

First year: Geography 183-201A, -202B, -203D, and 6 credits in Arts Geography.

Second year: Geography 183-271A and -272B, -351A.

Third year: Geography 183-321A, -451D and -306A or -308B.

Honours in Geography

Adviser: Professor R. N. Drummond, Room 310, Burnside Hall, 392-5497.

All Honours students take a basic group of courses in Geography. In addition they must choose an area of specialization. At present these are offered in Biogeography, Climatology, Geomorphology, and Regional Environments.

First year: Geography 183-201A, -202B, -203D, 6 credits in Arts Geography and 12 credits in non-geography courses chosen for their contribution to the topic of specialization.

Second and Third year: Geography 183-271A, -272B, -306A, or -308B, -321A, -350B, -351A, -481A, -451D, -484D, 18 credits from the area of specialization and 9 additional credits.

There are no prerequisites in geography for entrance to the Major or Honours B.A. or B.Sc. in Geography. Arts students should include six credits of mathematics in their CEGEP or pre-university programs. Students who have completed college or pre-university geography courses fully equivalent to those at first year university may substitute other approved courses as part of their Major or Honours programs.

Course Descriptions

Science students wishing to continue in Physical Geography who have not taken physical geography or earth sciences or geology at the College level (or equivalent) should enrol in Geography 183-E10A; or if they wish to continue in climatology, in 183-E12B.

B.A. students wishing to have an introduction to physical geography are advised that Geography 183-203D is suitable for most purposes.

183-E10A. THE SURFACE OF THE EARTH. (3 Credits. First or Second year.) An introductory description and explanation of the physical geography of the continents of earth. Special attention will be given to the geomorphic, hydrological and climatological processes that modify the surface and adjacent atmospheric environments in terms of their occupance by man and the biota. PROFESSOR BIRD

183-E11D. INTRODUCTION TO GEOGRAPHY. (6 Credits; 2 hours and conference.) An introductory course in two parts. Part I — a survey of the world's physical environments regarded especially from the viewpoint of man's occupance of the world. Part II — deals with the human aspects of the major man-environment system, its subsystems — ecosystems, resource systems and culture areas — and with man/land relations wherever they be located. PROFESSORS WILSON AND HILLS

183-E12B. CLIMATE AND WEATHER. (3 Credits; 2 hours and conference.) Physical processes and properties of the earth atmosphere system. Tropical and Mid-Latitude weather and climate. The global circulation, introduction to micro-climate and special topics, e.g. air pollution, frost protection. PROFESSOR WILSON

183-201A (E20A). INTRODUCTION TO CARTOGRAPHY AND AIR-PHOTO INTERPRETATION. (3 Credits; 1 hour plus laboratory periods.) The basic principles and technical skills used in cartography and the interpretation of air photos for the presentation and analysis of spatially distributed data. Thematic maps and the communication of ideas in map form. PROFESSOR DRUMMOND

183-202B (E21B). INTRODUCTION TO GEOGRAPHICAL ANALYSIS. (3 Credits; 2 hours and conference.) An introduction to the application of statistical techniques to the description, analysis and presentation of spatially distributed data. PROFESSOR MASSAM

183-203D (E22D). AN INTRODUCTION TO ENVIRONMENTAL STUDIES. (6 Credits; 2 hours and conference.) Geographical problems and themes in environmental studies; interactions between components of atmosphere, vegetation, fauna, soils, and terrain: experimental design, sampling methods, data quality, and elementary statistical methods for the analysis and presentation of field results. PROFESSOR MOORE AND MR. DRAKE

183-214A (E23A). CULTURAL GEOGRAPHY I. (3 Credits; 2 hours and conference; *Prerequisite:* A first year course in Geography or Earth Science or E22D.) Relationships between environment, technology and society: the concept of a man-environment (or ecological) system. Identification of the principal stages and processes of cultural evolution. PROFESSOR WADDELL

183-215B (E24B). CULTURAL GEOGRAPHY II. (3 Credits; 2 hours and conference; *Prerequisite:* Geography 214A.) A detailed consideration of the nature of the principal types of pre-industrial adaptations, and of the role of plants and animals in human ecological adjustments. PROFESSORS OLSON AND ———

183-216A (E25A). GEOGRAPHY OF LOCATION. (3 Credits; 2 hours and conference.) Introduction to the geographic organization of economies. Examination of the basic theoretical principles that explain the spatial organization of agriculture, industry and cities. PROFESSORS EWING AND GILMOUR

183-217B (E26B). INTRODUCTION TO URBAN GEOGRAPHY. (3 Credits; 3 hours; *Prerequisite:* An introductory geography course at the college level or equivalent.) The internal spatial structure of the city and related processes are analysed in terms of land uses, population density, social and economic characteristics of the population, travel patterns and household migration. Trends in urbanisation and urban growth in Quebec and Ontario are examined.
PROFESSORS EWING AND OLSON

183-271A. PHYSICAL GEOGRAPHY I. (3 Credits; 2 hours and conference/laboratory; *Prerequisite:* A course in physical geography or equivalent.) A systematic treatment of the geomorphology of areas of folding, faulting, intrusion and vulcanism and their response to weathering and erosion. PROFESSOR PARRY

183-272B. PHYSICAL GEOGRAPHY II. (3 Credits; 2 hours and conference/laboratory; *Prerequisite:* A course in physical geography or equivalent.) A systematic treatment of the geomorphology of areas dominated by gradational processes: glacial and periglacial, fluvial and mass-wasting, coastal and marine, aeolian and arid. PROFESSOR PARRY

183-300B. GEOGRAPHICAL ASPECTS OF CULTURAL ADAPTATION. (3 Credits; 2 hours and conference; *Prerequisite:* Geography 214A or permission of the instructor.) Study of the dynamic processes that structure the relationship between man, culture and environment. The role of energy and information for adaptive processes will be analysed within the context of urban and non-urban societies. Specific attention will focus on the ecological aspects of human nutrition and environmental health. PROFESSOR KEMP

183-301D. GEOGRAPHY OF CANADA. (6 Credits; 2 hours and conference; *Prerequisite:* Geography 214A or 216A. Geography E10A and Geography E12B and 203D will be accepted in the case of Science students continuing in Geography.) Evolution of Canadian economic regionalism. The Canadian growth experience and spatial economic structure. The geographic significance of agriculture, urbanism and industrialization, and their transformation of the primary landscape. Regional disparities and contemporary urban problems.
PROFESSOR GILMOUR

183-302D. ENVIRONMENT: ECOSYSTEMS AND MAN. (6 Credits; 3 hours; *Prerequisite:* Geography 203D or Biology E10D or permission of instructor. Field work is emphasized.) An ecological analysis of the physical and biotic components of the environment, with emphasis on the scientific, technological, institutional and other aspects of environmental degradation and restoration. Practical resource management in collaboration with local government and industry. PROFESSOR ZIMMERMANN

183-303D. THE SOVIET UNION AND EASTERN EUROPE. (6 Credits; *Prerequisite:* Geography 214A or 216A. Geography E10A, E12B and 203D will be accepted in the case of Science students continuing in Geography.) Position; general physical characteristics. The territorial development of Russia. Ethnic groups. Migration and settlement. Population distribution. Land use, agriculture, mining, and other industries including recent developments. Social significance of economic life. Urbanization. The administrative structure of the Soviet State and of Eastern European nations. PROFESSOR LLOYD

183-304A. HUMID TROPICAL ENVIRONMENT. (3 Credits; 2 hours and conference; *Prerequisite:* Geography 214A, Geography 203D is also recommended. Geography 304A will be offered every second year; Not given in 1973-74.) A consideration of the geographically significant cultural, physical and biological characteristics of the humid tropics. Major ecosystems of the region will be delimited and selected rain forest and savanna ecosystems will be analysed in depth. PROFESSOR HILLS

183-305A. THE GEOGRAPHY OF SOILS. (3 Credits; 2 hours and laboratory; *Prerequisite:* An introductory course in physical geography or geology or biology.) Discussion of main properties of soils; principles of soil formation and classification; major soil types of the world; soil survey techniques. PROFESSOR MOORE

183-306A. ADVANCED CARTOGRAPHY. (3 Credits; 1 hour and laboratory periods; *Prerequisite:* Geography 201A, or permission of instructor.) Analysis and interpretation of thematic and topographic maps. Their application to selected problems in physical and cultural geography, design and compilation of maps for geographic communication, map reproduction and computer mapping. PROFESSOR DRUMMOND

183-307B. SOILS AND LAND UTILIZATION. (3 Credits; 2 hours and conference/laboratory; *Prerequisite:* Geography 305A or permission of instructor.) Principles of land utilization and crop growth; case studies of the influence at soils on land use in selected environments.
PROFESSOR MOORE

183-308B. AIR PHOTO INTERPRETATION. (3 Credits; 1 hour and laboratory periods; *Prerequisite:* Geography 201A, or permission of instructor.) The principles of air photo interpretation and remote sensing of the environment, applications to geomorphology, land use and inventory of natural resources. Elementary photogrammetry and orthophoto-mapping.
PROFESSOR DRUMMOND

183-309B. GEOGRAPHY OF QUEBEC. (3 Credits; 2 hours and conference.) A geographical interpretation of selected social, economic and political problems of contemporary Quebec; ethnicity, demography, urbanization, regional disparities, economic marginality, with the purpose of segregating elements unique to Quebec from the more universal aspects that pervade them. PROFESSOR WADDELL AND STAFF

183-310A. GEOGRAPHY OF THE CARIBBEAN. (3 Credits; 2 hours and conference.) The nature, perception and management of Caribbean resources will be described and analysed from the point of view of historical factors, cultural diversity, and political organization. Models of economic development and attempts at regional organization will be considered. PROFESSOR HILLS AND STAFF

183-312B. THE GEOGRAPHY OF CHINA. (3 Credits; 2 hours and conference.) A general overview of the Chinese landscape. Special topics will focus on the distribution and growth of population, the remodelling of agricultural organization since 1949, changes in the industrial sector and spatial pattern of industry, and transportation networks. PROFESSOR VEILLEUX

183-314A. INTERMEDIATE URBAN GEOGRAPHY. (3 Credits; *Prerequisite:* Geography 216A or 217B or permission of instructor.) Theories explaining the size, spacing, social and economic features of towns. Simulation models of urban patterns. Models of spatial perception and interaction. PROFESSORS EWING AND MASSAM

183-315B. GEOGRAPHY OF RECREATION AND TOURISM. (3 Credits; *Prerequisite:* Geography 216A or permission of instructor.) Recreational behaviour with emphasis upon its geographical and spatial dimensions; recreational land use within different planning frameworks; the development of tourism and international travel systems with the view of assessing their effects as local, regional and national resource bases; travel industry entrepreneurship and structural/geographic linkage characteristics in regional development situations particularly for developing countries. PROFESSOR LUNDGREN

183-316A. CONTEMPORARY POLITICAL GEOGRAPHY. (3 Credits; 2 hours and conference; *Prerequisite:* Geography 202B or permission of instructor.) The study of spatial dimensions of political activities at the local, national and international level. PROFESSOR LOGAN

183-317B. THEMES IN TROPICAL REGIONAL GEOGRAPHY. (3 Credits; *Prerequisite:* Geography 214A.) *OCEANIA.* Several cultural geographic themes are considered in the context of Oceania: nature of responses to population pressure on resources, regional trading (ancient and modern), cultural constraints in the modernization of the traditional economies, rural-urban migration and urbanization. PROFESSOR WADDELL

NOTE: In subsequent years, other parts of the tropical world, including Tropical Africa may be offered.

183-318B. SPATIAL ANALYSIS OF MANUFACTURING. (3 Credits; 2 hours and conference; *Prerequisites:* Geography 216A and 217B; Geography 351A is also recommended; or by permission of instructor.) Spatial aspects of manufacturing industry. Taxonomic and measurement problems. Models of industrial location (inter- and intra-urban). Dynamics of spatial redistribution in relation to different levels of economy. The changing role of the factors of location. Methods of industrial distribution analysis. Studying the location decision. The behavioural versus the deterministic approach. PROFESSOR GILMOUR

183-319A. GEOGRAPHY OF ECONOMIC DEVELOPMENT. (3 Credits; *Prerequisite:* Geography 214A, 216A or 217B or by permission of instructor.) Analysis of the role of geography in the field of economic development; growth and development theories on different geographic scale levels; behaviour of selected economic activities in change process; regional economic development in relation to changing resource utilization; development planning. PROFESSOR LUNDGREN

183-321A. CLIMATIC ENVIRONMENTS. (3 Credits; *Prerequisite:* Geography E12B or 203D or Meteorology 210D or instructor's permission.) Scope of climatology, physical, dynamic and applied. The earth/atmosphere system, radiation and energy balances, governing meteorological processes. Movement and circulation of the atmosphere on a local and global scale. Resulting weather systems. DR. SZEICZ

183-322A. INTRODUCTION TO HYDROLOGY. (3 Credits; 2 hours and laboratory/conference; *Prerequisites:* Geography E10A and E12B or equivalent.) Quantitative, experimental study of the principles governing the movement of water at or near the earth's surface. MR. DRAKE

183-323B. SURFACE WATER HYDROLOGY. (3 Credits; *Prerequisite:* Geography 322A.) Spatial and temporal variations of the quantity and quality of surface waters as they are affected by geology, geomorphology, and land use. MR. DRAKE

183-324B. BIOCLIMATOLOGY. (3 Credits; *Prerequisite:* Geography E12B or 203D or Meteorology 210D or permission of instructor.) Climatic classification and weather systems. Influence of climate on plants, animals, and man. Water balance and its application in agriculture and water resource analysis. Principles of physiological climatology; calculation of wind chill,

effective temperature, and comfort-indices. Application of physiological climatology to human affairs, e.g. health, urban planning, and house design. DR. SZEICZ

183-331A. URBAN SOCIAL GEOGRAPHY. (3 credits; *Prerequisite:* Geography 214A or 216A or permission of instructor.) An historical and contemporary view of social problems in cities with particular reference to housing, employment, transportation and environmental quality. Field work in Montreal will form part of the course. PROFESSOR OLSON

183-336D. INDIGENOUS PEOPLES OF NORTH AMERICA: A HUMAN GEOGRAPHIC AND CULTURAL APPROACH. (6 Credits; 2 hours and conference; *Prerequisite:* Geography 214A or permission of instructor.) A survey of North American Indian and Eskimo cultures from ethnographic and ecological perspectives. The areal emphasis of the course will be upon Canadian Eskimo and Indian populations. The evolutionary approach will be utilized in the analysis of data pertaining to ecological adaptation and sociocultural change among selected groups. PROFESSORS KEMP AND SINDELL

183-346B. GEOGRAPHICAL BACKGROUND OF INTERNATIONAL RELATIONS. (3 credits; 2 hours plus conference; *Prerequisite:* A university level geography course and permission of the instructor.) The principles and practice of poiltical geography at the world and international level. Geographical factors and relationships influencing political events and decision making. PROFESSOR LLOYD

183-350B. GEOGRAPHY IN THE FIELD. (3 Credits; 2 lectures and conference and prescribed field work; *Prerequisite:* for second year honours, joint honours, majors in geography and others by permission of instructor.) An introduction to field techniques, measurements and data collection. Problem formulating, research design and the presentation of written and graphic material will be discussed. Research projects will focus on field problems and associated techniques that best fit the students' specialization within geography. THE STAFF

183-351A. GEOGRAPHICAL ANALYSIS AND QUANTITATIVE METHODS. (3 Credits; 3 hours; *Prerequisite:* Geography 202B or permission of instructor.) Basic conditional probability theory, urn schemes, occupancy problems, theoretical probability distributions, sampling theory and univariate statistical inference, multiple regression and one- and two-way analysis of variance. PROFESSORS EWING AND HOLLAND

183-402D. REGIONAL GEOGRAPHY OF NORTHERN LANDS. (6 Credits; *Prerequisites:* an introductory geography course and one course in regional geography or permission of instructor.) An introduction to the study of lands north of the areas of continuous settlement, including parts of Canada, Greenland, Iceland, Scandinavia, U.S.S.R., Alaska and related seas. A comparative description of their physical characteristics, human and economic resources, territorial sovereignty and future development. PROFESSOR LLOYD

183-411A. GEOGRAPHY OF INTERNATIONAL TRADE. (3 Credits; *Prerequisite:* Geography 216A or permission of instructor; Geography 411A will be offered every second year.) Geographic patterns of international trade, regional resource base and trade generation. Trade systems. The foreland-hinterland concept, commodity innovation, geographic diffusion and range. PROFESSOR LUNDGREN

183-412B. ADVANCED URBAN GEOGRAPHY. (3 Credits; 2 hours and conference; *Prerequisites:* Geography 216A and 351A or 352B or permission of instructor.) Location problems within and among cities for the public and private sectors. Consumer spatial behaviour, input-output analysis, decentralization, scheduling, inter-municipal cooperation. PROFESSORS MASSAM AND EWING

183-414A. TROPICAL AGRICULTURAL SYSTEMS. (3 Credits; 2 hours and conference; *Prerequisites:* Geography 214A and preferably 215B or by permission of instructor; Not given in 1973-74.) Three major tropical agricultural systems — shifting, permanent and irrigation — are analysed in ecological terms. Attention is focused particularly on the dynamics of such systems — of changes effected in response to demographic growth and economic diversification particularly — using primarily southeast Asian and Melanesian materials. PROFESSOR WADDELL

183-422A. MICROCLIMATOLOGY. I. URBAN CLIMATIC ENVIRONMENTS. (3 Credits; *Prerequisite:* Geography E12B or 203D or Meteorology 210D or permission of instructor. Not given in 1973-74.) An examination of factors affecting urban climates. Solar radiation in city areas and the effect of the city on energy exchanges. City air pollution and weather elements. Heat load on buildings. Comparative studies of wind chill and air comfort index in downtown and suburban city areas. PROFESSOR WILSON

183-423B. MICROCLIMATOLOGY. II. AGRO- AND HYDRO-CLIMATOLOGY. (3 Credits; *Prerequisite:* Geography 321A or Meteorology 310D.) A detailed examination of the process of evapotranspiration and the transfers of heat, carbon dioxide, and momentum near the earth's surface. Methods of measurement based on energy balance, water balance, and turbulent transport theory. Models of potential and actual evapotranspiration, and their use in soil moisture and crop yield predictions. Snow melt models. PROFESSOR WILSON

183-451D. BIOGEOGRAPHY. (6 Credits; *Prerequisite:* Geography 203D or 302D or permission of instructor for students in continuation or honours biological sciences.) Study of life according to its environmental and spatial relationships with emphasis on plants. The interaction, geographical distribution, domestication and economic utility of biota in the regional setting. PROFESSORS ZIMMERMANN AND HOLLAND

183-471D. TOPICS IN ADVANCED PHYSICAL GEOGRAPHY. (6 Credits; 1 hour lecture, seminar and laboratory; *Prerequisites:* Previous courses in Mathematics and Geology or Physical Geography or permission of instructor.) Study of major geomorphic processes and effects on the landscape. Special reference to the mechanics of debris transport by mass movement, streams and wind. PROFESSOR CARSON

183-481A. EVOLUTION OF MODERN GEOGRAPHY. (3 Credits; For Honours and Joint Honours and Majors students in Geography only.) A review of the historical development of geography as a separate discipline and a systematic analysis of the main branches of modern geography with emphasis on the theoretical and methodological developments during the last fifty years. PROFESSOR ————

183-482D. RESEARCH AND READING COURSE IN HUMAN GEOGRAPHY. (6 Credits; For final year B.A. Honours or Joint Honours in Geography only.) An advanced course designed to familiarize the student with contemporary research and writing in the various aspects of human geography. An essay or undergraduate thesis will be required to complete the requirements of this course. THE STAFF

183-484D. RESEARCH AND READING COURSE IN PHYSICAL GEOGRAPHY. (6 Credits; For final year B.Sc. Honours or Joint Honours in Geography only.) An advanced course designed to familiarize the student with contemporary research and writing in the various aspects of physical geography. An essay or undergraduate thesis will be required to complete the requirements of the course. THE STAFF

GEOLOGICAL SCIENCES (186)

Frank Dawson Adams Building, Departmental Office Room 238, Telephone 392-5730

Geology is a study of the planet Earth — its composition, structure, behaviour, and history.

Although geologists must have a basic training in mathematics, physics, and chemistry, geology is a science in itself dealing with events which took place millions of years ago and involved masses of continental dimensions. Most geologists start their research in the field, collecting samples, measuring rocks, and determining their properties with portable instruments. In the laboratory they analyse these specimens and interpret their measurements, using the sophisticated tools of modern science. The forces that molded a mountain chain, built a volcano, or drifted the continents apart cannot be duplicated by man, but the geologist can understand these events by analogy with experimental models and laboratory investigations of the compositions and strengths of the rocks of the crust of the earth. Like most sciences geology has its theoretical and practical aspects; geologists are concerned with the origin of our planet and solar system, the evolution of its surface, the nature of its interior, and the atomic structure of its minerals, as well as with the discovery of mineral deposits, the location of dam sites, and the prediction of earthquakes.

Some geologists specialize in the application of physics to understanding the earth's interior (geophysicists), some in investigating the composition of the earth (geochemists), still others in finding metals, oil and coal (economic geologists). Some study the rocks under the sea (marine geologists), some the history of the earth as revealed in its sedimentary rocks and fossils (stratigraphers and paleontologists), and still others study its land-forms and surface materials (geomorphologists).

Entrance to the Major and Honours programs is through the Physical Sciences profile of the Quebec Collegiate curriculum or its equivalent (see page 45). Although students intending to enter these programs are urged to take geology courses available in their academic preparation for coming to McGill, such courses are not essential to entrance to a Geology program. Students at McGill may study geology as part of a Faculty program, in the Major program, or in the Honours programs. The Honours program in Geological Sciences is designed to prepare the student for graduate work and for a career as a professional geologist. It includes electives in the upper years

so that students can follow an interest in one branch of the science. Students interested in geophysics should enrol in the Honours program in Solid Earth Geophysics.

Geologists are employed by companies exploring for minerals and fuels, by government agencies such as the Ministère des Richesses Naturelles and the Geological Survey of Canada, in research laboratories and in universities. They work in cities and in Arctic wastelands, in the laboratory and in the office, in the deserts and in the jungles of developing countries. Many geologists are now employed in government and industrial laboratories concerned with the exploration of the solar system. Canada, a country dependent on vast natural resources, requires the geologist's skills for the development of the economy. A world facing crises in the supply of energy-giving fuels and metals will depend increasingly on the geologist for guidance in finding new supplies. Mankind facing progressive deterioration of his environment by its own wastes requires the expertise of the earth scientist to maintain the quality of life. When man ventures to the other planets of the solar system, he must take with him a fuller understanding of the workings of his home, the earth.

The Honours and Major programs in Geology include the same "core" courses. Students enrolling in the Honours program must have, and maintain a grade point average of 2.8 or second class standing and their electives must be approved by departmental advisers.

Program Information

FACULTY PROGRAMS

Faculty programs administered in this department include Geomorphology, Marine Geology, and Palaeobiology; for details, see page 169. Students interested in these interdisciplinary fields should consult the departmental office to obtain an adviser.

MAJOR IN GEOLOGICAL SCIENCES

Students must inquire at Room 238, Frank Dawson Adams Building, telephone 392-5730 to be assigned to an adviser.

The following is a typical sequence of courses.

U1: Geology 186-210A, -211A, -230D;
Chemistry 180-213A, B;
Electives to make 30 credits. Students who have taken no general course in geology should elect Geology 186-201A.
Geology 186-331F (Field School) at the close of the session.

U1 or U2: Geology 186-242A, 233B;

U2: Geology 186-213B, -220B, -303D, -310D, -312A, -347B;
Electives to make 30 credits.

U3: Geology 186-323A, -343D; -345B;
Electives to make 30 credits.

HONOURS IN GEOLOGICAL SCIENCES

The core courses are the same as those specified for the major program but students must have above a 2.8 GPA or its equivalent to start the program and maintain such standing throughout. Eighteen of the elective credits must be taken with departmental approval.

A typical sequence would be:

U1: Geology 186-210A, -211A, -230D, -233B, -242A. Students who have taken no general course in geology should elect 186-201A. Chemistry 186-213A, B, approved electives and other courses to make 30 credits.
Geology 186-331F at the close of the session.

U2: Geology 186-213B, -220B, -303D, -310D, -312A, -347B, approved electives and other courses to make 30 credits.

U3: Geology 186-323A, -343D, -345B, approved electives and other courses to make 30 credits.

Special arrangements may be made so that students in the Honours course who wish to specialize in Geochemistry, Geophysics, or other interdisciplinary areas, may substitute other science courses in this program.

HONOURS IN SOLID EARTH GEOPHYSICS

U1: Geology 186-210A, -230D;
Physics 198-231A, B, -232A, B;
Chemistry 180-213A or Physics 198-233A;
Mathematics 189-222A, B; -223A, B or -245A, B;
Electives to make 10 credits;
Geology 186-331F (Field School) at the close of the session.

U2: Geology 186-303D, -310D, -347B, -220B;
Mathematics 189-314A, B, -315A, B; Physics, 3 credits;
Electives to make 30 credits.

U3: Geology 186-443D;
Mathematics 189-319B;
Mining 307- (9 credits from the 15 credits offered in Exploration Geophysics);
Electives to make 30 credits.

Crystallography

Most solids, from the minerals of the earth and the moon to the proteins and other macromolecular biological materials, have a structure that is characterized by a regular triperiodic arrangement of atoms and molecules; they are crystalline. Crystallography concerns itself with the determination of these interatomic arrangements and their imperfections as well as with the study of the resulting chemical and physical properties of crystalline matter.

Crystallographers find their problems in fields as diverse as mineralogy, crystal physics, molecular biology, solid state chemistry, materials science, group theory, etc. The student's preparation should therefore be as sound and broad as possible in the fundamentals of science. In the Honours and Major programs, which are administered by the Department of Geological Sciences, a student takes more chemistry than the physics student, and more physics and mathematics than the chemistry student. In addition, the student at the undergraduate level will be taught morphological and structural crystallography, symmetry, crystal chemistry, the techniques of X-ray diffraction, and optical crystallography.

Students successfully completing the Crystallography program may proceed to graduate studies in crystallography, where they may specialize in the physical, the chemical, or the biological aspects of the subject. This training will prepare crystallographers for careers in basic research and teaching or in industry.

MAJOR IN CRYSTALLOGRAPHY

First year: Geology 186-210A and -211A; Chemistry 180-213A or -212B; Mathematics 189-222B, -223A; Physics 198-219A and -251A or -231A, B. 9 additional credits

Second year: Geology 186-213B; Mathematics 189-314B; Chemistry 180-281A; Physics 198-346D; Computing Science 308-200A. 12 additional credits

Third year: Geology 186-493D; Mathematics 189-315A; Physics 198-434B, -438B; Chemistry 180-381B. 12 additional credits

HONOURS IN CRYSTALLOGRAPHY

Honours students will take the same courses required for Major students and will be given additional course requirements after consultation with their adviser. They must maintain a 2.8 minimum GPA.

Course Descriptions

Courses available to College Equivalent Students include the following: 186-E12A (-201A), -E20A (-210A), E23B (-233B), -E25B (-243B).

The following courses are without prerequisite and could be taken by students in the Faculty of Arts: 186-201A, -233B, and -243B. Other courses assume as a prerequisite completion of the courses required in the Physical Sciences option of the CEGEP curriculum. (See page 45).

186-201A (E12A). INTRODUCTION TO GEOLOGY. (3 Credits; 3 lectures; 1 laboratory.) Earth's place in the universe, moon and planets, minerals and rocks, internal structure of the earth, volcanism and earthquakes, evolution of landscapes, mountains and continental drift.
PROFESSORS ELSON AND STEARN

186-210A (E20A). INTRODUCTION TO MINERALOGY. (3 Credits; 2 hours lecture, 3 hours laboratory; Full day field trip, 1st Tues. after Thanksgiving.) Mineralogy of the principal ore and rock-forming minerals.
PROFESSOR STEVENSON

186-211A. CRYSTALLOGRAPHY. (3 Credits; 2 hours lectures, 3 hours laboratory.) Lattices, crystal systems, point groups, space groups, crystal morphology (stereographic projection, Wulff net), twinning, X-ray diffraction applied to powders and single crystals (rotation, Weissenberg precession), Fourier summations (electron density and Patterson), approaches to crystal-structure determination.
PROFESSOR DONNAY

186-213B. CRYSTAL CHEMISTRY. (3 Credits; 2 hours lectures; *Prerequisite:* Geology 211A.) Discussion of crystal structures of important mineral groups, especially oxides, sulphides and silicates. Solid solution. Relation of structure to morphology and to chemical and physical properties of crystalline matter.
PROFESSOR DONNAY

186-220B. ELEMENTARY EARTH PHYSICS. (3 Credits; 3 hours lectures, one of which may be replaced by a conference.) Physical properties of the earth and the processes associated with its existence as inferred from astronomy, geodesy, seismology, geology, terrestrial magnetic and thermal effects, geochemistry, etc. Critical evaluation of hypotheses explaining above.
PROFESSOR SAULL

186-230D. ANALYSIS OF GEOLOGICAL DATA. (6 Credits; 3 hours lectures, computer laboratory and problems.) Statistical analysis of geological data, design of experiments, computer programming applied to geological problems.
PROFESSOR DOIG

186-233B (E23B). HISTORICAL GEOLOGY AND STRATIGRAPHIC PALEONTOLOGY. (3 Credits; 2 lectures, 2 hours laboratory.) Relative and absolute time scale; biostratigraphy, paleontological correlation. Periods of earth history; evolution of oceans and continents; Paleogeography and paleoclimates. Major steps in evolution of life. Geologic history of sea-water and atmosphere.
PROFESSOR HESSE

186-242A. GEOMORPHOLOGY. (3 Credits; 2 lectures and 1 laboratory period; one day field work in October.) Weathering, mass wasting, erosional and depositional landforms produced by surface processes except glaciation (see GEOLOGY 431B); relationship of topography to lithology and structure.
PROFESSOR ELSON

186-243B (E25B). ENVIRONMENTAL GEOLOGY. (3 Credits; 2 hours lectures, 1 conference.) Introduction to the relationship of geological factors to the human environment; optimum land and mineral use, natural hazards, ground water, engineering and urban geology.
PROFESSOR EAKINS

186-303D (E24D). STRUCTURAL GEOLOGY. (6 Credits; 2 lectures and 3 hours laboratory.) Aims of structural geology, stress and strain, mechanical properties of rocks, elastic behaviour, brittle and ductile deformation, fabric analysis of deformed rocks, time relationships between deformation and metamorphism. Geotectonic theories.
PROFESSOR HELMSTAEDT

186-310D. INTRODUCTORY PETROLOGY. (6 Credits; 2 lectures and 3 hours laboratory; *Prerequisite:* 186-210A.) Integrated survey of igneous, sedimentary, and metamorphic rocks and processes leading to their formation. Emphasis in the laboratory on hand specimen description and classification, supplemented by thin sections.
PROFESSORS HESSE, MARTIN AND MOUNTJOY

186-312A. OPTICAL MINERALOGY. (3 Credits; 2 hours lectures and 3 hours laboratory; *Prerequisite:* 186-210A.) Optical properties of microscopy of non-opaque minerals. Minerals in oil immersion mounts and in thin section are studied in the laboratory.
PROFESSOR STEVENSON

186-323A. IGNEOUS PETROLOGY. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* Geology 347B, 312A.) Physical properties, nucleation, crystallization, differentiation and emplacement of magmas. Integrated studies on various rock suites, granites, syenites, quartz monzonite, etc.
PROFESSOR MARTIN

186-331F. FIELD GEOLOGY. (6 Credits; Three-week field school in May.) Geological mapping of selected areas, including preparation of maps, sections, and reports from field notes, aerial photographs and other data.
PROFESSOR HELMSTAEDT

186-343D. SEDIMENTARY ROCKS AND STRATIGRAPHY. (6 Credits; 2 lectures and 1 laboratory period; 2 full days of field work during October; *Prerequisites:* Geology 230D, 310D.) Physical processes of sedimentation. Sedimentary structures. Modern and ancient sedimentary environments. Diagenesis and geochemistry. Sedimentary mineral deposits. Facies associations. Basin analysis. Stratigraphic correlation.
PROFESSORS HESSE AND MOUNTJOY

186-344B. ORE MINERALS. (3 Credits; 2 lectures, 3 hours laboratory; *Prerequisite:* Geology 210A.) Microscopy of ore minerals, including identification, interpretation of textures, paragenesis and classification.
PROFESSOR STEVENSON

186-345B. METAMORPHIC PETROLOGY. (3 Credits; *Prerequisites:* Geology 301A, 302B, 347B.) The origin, classification and petrological significance of metamorphic rocks, from the point of view of theory, experiment and field observations. PROFESSOR HELMSTAEDT

186-347B. GEOCHEMISTRY OF HIGH TEMPERATURE PROCESSES. (3 Credits; 3 hours lectures; *Prerequisites:* Geology 210A, 211A, 213B, Chemistry 213A or B.) Fundamentals of phase equilibria, chemographic methods in petrology, open and closed natural systems, partition of elements among mineral phases, distribution patterns of specific elements. PROFESSOR MARTIN

186-348A. TOPICS IN GEOCHEMISTRY. (3 Credits; 3 hours lectures; *Prerequisite:* Geology 347B.) The geochemistry of aqueous, weathering, organic sedimentary and ore-forming processes; isotope geochemistry. STAFF

186-430B. GEOLOGY OF ENERGY SOURCES. (3 Credits; 2 lectures and 2 hours laboratory or seminar; *Prerequisite:* Geology 186-343D; Not given in 1973-74.) Properties, origin, migration and occurrence of petroleum and natural gas. Canadian oil fields. Structural and stratigraphic reservoirs and their characteristics. Oil shales, coal, peat, radioactive minerals and solar energy sources. PROFESSOR MOUNTJOY

186-431B. GLACIOLOGY AND PLEISTOCENE GEOLOGY. (3 Credits; 2 hours lectures and 1 laboratory or lecture period; *Prerequisite:* Geology 186-242A or permission of the instructor.) Introductory glaciology and glacial geology. The geological record of the Quaternary Era. PROFESSOR ELSON

186-434D. INVERTEBRATE PALEONTOLOGY. (6 Credits; 2 lectures, 1 laboratory period, one day's field work in October; *Prerequisite:* 186-233B or appropriate zoological background.) Nature of the fossil record, paleoecology, phylogeny, evolutionary concepts, problems of classification and biostratigraphy. PROFESSOR STEARN

186-441D. MINERAL DEPOSITS. (6 Credits; 2 lectures and 1 laboratory period; *Prerequisites:* 186-310D, 186-347B, or permission of instructor.) Nature, origin, mode of occurrence, and classification of deposits of metallic and of important non-metallic minerals; typical occurrences; geographical distribution. PROFESSOR MacLEAN

186-442A. GEOPHYSICAL EXPLORATION. (3 Credits; 2 lectures and 2 hours laboratory.) Survey course covering applications of seismic, gravimetric, magnetic and electrical techniques in exploring for oil and minerals. Laboratory work involves experiments illustrating basic principles of the various techniques. PROFESSOR TELFORD

186-443D. SOLID EARTH GEOPHYSICS. (6 Credits; 3 hours lectures; *Prerequisite:* 186-220B.) A general coverage of solid earth geophysics including gravity, seismology, heat flow. PROFESSORS SAULL, KU, DOIG, AND TELFORD

186-446A. ENGINEERING GEOLOGY. (3 Credits; 2 lectures and 2 hours laboratory or lecture period; *Prerequisite:* Permission of instructor.) Significance of geologic factors in foundation engineering and effects of man's activities in the geologic environment. Construction materials, geological problems connected with excavations, tunnels, dams and other construction. PROFESSOR GRICE

186-448A. APPLIED GEOCHEMISTRY. (3 Credits; 2 lectures and 1 laboratory period; *Prerequisites:* Geology 186-347B, 348A, or permission of instructor.) Principles of geochemical prospecting and pertinent aspects of the geochemical behaviour of elements are studied. A field trip and laboratory work provide practical experience. PROFESSOR WEBBER

186-449B. GROUNDWATER GEOLOGY. (3 Credits; 2 lectures and 2 hours laboratory or lecture period; *Prerequisite:* Permission of instructor.) PROFESSOR GRICE

186-450B. GEOLOGY OF NORTH AMERICA. (3 Credits; 2 hours lectures, 3 hours laboratory; *Prerequisites:* 186-233B, 186-310D.) Systematic consideration of the geology of the various tectonic provinces of the North American continent with emphasis on structure, stratigraphy and resources. PROFESSOR MOUNTJOY AND STAFF

186-480D. GEOLOGICAL RESEARCH PROJECT. (6 Credits; *Prerequisite:* for Honours students in 3rd year.) Under the supervision of one of the members of the staff the student will undertake an investigation and prepare the results in the form of a research report. STAFF

186-492A. PHOTOGEOLOGY. (3 Credits; 3 hours laboratory and problems; *Prerequisite:* Permission of instructor.) Interpretation of surface deposits and bedrock lithology and structure from air photographs; elementary photogrammetry. PROFESSOR ELSON

186-493D. CRYSTAL-STRUCTURE DETERMINATION. (6 Credits; 6 hours laboratory; *Prerequisite:* Geology 186-211A.) Techniques of structure determination applied to a research problem. PROFESSOR DONNAY

186-605D. MINERAL EXPLORATION AND MINING GEOLOGY. (6 Credits; 2 lectures and 2 hours laboratory; *Prerequisite:* Permission of instructor.) Methods of searching for mineral deposits; modern exploration programs; development of mineral deposits, evaluation of mineral deposits. PROFESSOR EAKINS

395-697B. MARINE GEOLOGY AND GEOCHEMISTRY. (3 Credits; 3 lectures; *Prerequisites:* Geology 343D, 347B, 348A.) An introduction with emphasis on deep sea studies. Geophysical nature and morphology of the ocean basins. Geochemistry of pelagic deposits in relation to sea water composition. Deep sea stratigraphy and methods of correlation; the sedimentary record. PROFESSOR D'ANGLEJAN

The following courses are described in the *Announcement of the Faculty of Engineering:* Geological Sciences 186-221A, -232A, -441B.

MATHEMATICS (189)

Burnside Hall, Room 1005, Telephone 392-5369.

Early mathematics consisted for the most part of empirical rules for performing operations on concrete objects by means of numerical processes. From this, mathematics has evolved to a discipline which is mainly characterized by its method of proof, its concern for a progressive broadening of its concepts, and by the search for mathematical entities and operations that represent aspects of reality. It is a subject which is pursued by many for its own sake, and regarded as part of the mainstream of human culture. Mathematics pervades modern society with an impact which, already immense, is rapidly growing.

The two principal divisions of mathematics are pure mathematics and applied mathematics. The pure mathematician is interested in abstract mathematical structures and in mathematics as an intellectual enterprise. He may even view his subject as an art. He is not primarily concerned with its utilitarian aspects or with the current needs of science and technology, although many problems in pure mathematics have developed from the sciences.

The applied mathematician is more interested in how he can use his mathematics to study some aspects of the world around him. He is engaged in the creation, study and application of advanced mathematical methods relevant to scientific problems. Statistical science and methodology today is concerned with phenomena in which there is a background of uncertainty arising from inherent variability, and the investigator is obliged to arrive at decisions from limited contingent data generated by such phenomena. A key tool in statistics is the calculus of probability.

Some of the fields in which pure mathematicians work are algebra, analysis, geometry, topology, number theory and foundations. Applied Mathematics which once referred to the application of mathematics to such disciplines as mechanics and fluid dynamics, has currently assumed a much broader meaning and embraces such diverse fields as communication theory, theory of optimization, theory of games and numerical analysis.

Mathematics offers many vocational possibilities. Such fields as teaching, computing, applied statistics and actuarial science offer opportunities for B.Sc. graduates. Opportunities to do original research in pure and applied mathematics are available in universities and similar institutions. Employment is to be found in financially or technologically oriented business firms.

The Department of Mathematics through its various programs attempts to provide courses to suit the diverse interests and attitudes within mathematics.

The Honours Program in Mathematics demands of the student a certain talent for abstraction in addition to a high level of competence in the use of mathematical tools. This program is intended for students who plan to work in an area where mathematical innovations may be needed. It is almost essential for students contemplating a career in mathematical research.

The Major Program involves the same subjects as the Honours Program but is less demanding in terms of abstraction. It is designed primarily for students who will need mathematical tools in their work but whose creative activity will involve applications of mathematics to other areas, but not to mathematics itself. Within the framework of the mathematics major, various combinations of courses are suggested to meet the needs of different students. These include course suggestions for secondary school

teachers, careers in management, and for careers in industry, government or actuarial sciences.

It is possible for a Major student to include a number of Honours courses in his program. This will be an advantage for those students who plan to use their mathematics in graduate studies.

Students interested in a less intensive mathematics program linked to other disciplines are advised to consider the available Faculty Programs.

In planning their programs students are advised to seriously consider developing some depth in another discipline — preferably one for which mathematics has some relevance and use. Mathematics has always been closely linked to areas such as physics and engineering but has recently come to play an increasingly important role in fields such as biology, linguistics, management and psychology.

Faculty Programs

The following programs linking mathematics and other disciplines are available. With careful selection of courses in U1, it is possible to transfer to a Major program in Mathematics in U2. Except where otherwise noted these faculty programs lead to a B.Sc. degree. See details on page 169.

Major Program

Programs of study for students entering U1 in 1973-74.

The compulsory courses are 189-201A, B, 189-202A, B, 189-221A, B, 189-222A, B, 189-245A, B.

Advisers will approve a program of which 54 credits will be in Mathematics (excluding 201A, B, 202A, B, 221A, B) or allied courses including at least 36 credits from the following: 189-217A, 189-218B, 189-242A, 189-243B, 189-246A, B, 189-314A, B, 189-315A, B, 189-316B, 189-317A, 189-318A, 189-319B 189-323A, B, 189-324A, B, 189-327B, 189-328B, 189-333A, 189-346B, 189-348A, 189-349B, 189-360B, 189-369D, 189-410D, 189-416A, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B.

GUIDELINES FOR SELECTION OF COURSES IN THE MAJOR PROGRAM

a) Students are advised to include the following courses in their program: 189-246A, B, 189-314A, B, 189-315A, B, 189-317A, 189-323A, B, 189-324A, B, 308-200A, B.

b) Students planning to pursue graduate studies are advised to include 189-242A, 189-243B and 189-333A in their program, and to consider substituting one or more Honours courses for the corresponding courses in the Major program.

c) Students considering a career in teaching are advised to include in their program the following courses: 189-217A, 189-218B, 189-242A, 189-318A, 189-328B, 189-348B, 189-349B.

d) Students interested in applied mathematics or statistics are advised to include in their program the following courses: 189,217A, 189-218B, 189-316B, 189-319B. Depending on their interests, they should in addition take some or all of the following courses: 189-327B, 189-328B, 189-410D, 189-416A, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B, 189-486B.

e) Students interested in computer science are advised to register in the following courses: 189-318A, 189-327B, 189-328B, 189-417A, 308-210A, B, 308-300A, B; they should choose additional courses from 189-319B, 189-410D, 189-416A, 189-423A, 189-424B, 189-425A, 189-447B, 308-640D*, 308-610A*, 308-699D*.

f) Students interested in careers in actuarial work in industry or government are advised to select courses from the following list: 189-319B, 189-327B, 189-328B, 189-369D, 189-410D, 189-416A, 189-417A, 189-423A, 189-424B, 189-425A, 189-447B, 189-486B, 308-210A, B.

*These courses require special permission from the instructors.

The student's attention is called to the fact that a B.Com. degree with a Major in Mathematics is available from the Faculty of Management. In addition the Faculty of Music offers a degree B.Mus. (Honours in Theory with Mathematics Option).

Honours Program

The minimum requirement for entry into the Honours Program is that the student has completed with high standing the following courses (or their equivalents): 189-201A, B, 189-202A, B, 189-221A, B. He should preferably also have taken 189-222A, B (or equivalent).

REQUIREMENTS FOR HONOURS IN MATHEMATICS

For an Honours Degree in Mathematics the student must obtain 90 course credits; at least 60 of these should correspond to Honours courses (or their equivalent), not less than 45 to Honours courses in Mathematics. In addition to the latter, the student may count towards his 60 credit Honours requirement:

i) half of the courses he has taken from the Major Program in Mathematics (including Computer Science courses) for which no equivalent Honours course exists;

ii) (with the approval of the Department of Mathematics) certain courses in other departments which are at an Honours level, and are closely linked to Mathematics;

iii) (with the approval of the Department of Mathematics) half the courses he has taken in other departments, which while not necessarily explicitly mathematical in nature, are at an Honours level and broaden the student's scientific training. Students who transfer to Honours in Mathematics from other programs will have credits for previous courses assigned, as appropriate, by the Department.

The following courses are compulsory: 189-271D, 189-272D, 189-371D, 189-372D.

To remain in the Honours Program, and to be awarded the Honours Degree, the student must maintain a 2.8 Grade Point Average.

GUIDELINES FOR SELECTION OF COURSES IN THE HONOURS PROGRAM

a) The compulsory courses may be spread over the three years of study.

b) Students taking 189-271D and 189-272D simultaneously are advised to register also for 189-273D.

c) Students are advised to include in their program the following courses: 189-273D, 189-356A, 189-357B, 189-374D, 189-380D.

d) Students interested in Statistics should register for 189-456D and 189-487D in addition to 189-356A and 189-357B.

e) Students in Applied Mathematics should register for some or all of the courses 189-470A, 189-474A, 189-475B, 189-478A and 189-479B in addition to 189-374D. They are also advised to select courses in areas to which they can apply their mathematics.

Course Descriptions

NOTE: The Calculus sequence at McGill assumes satisfactory completion of a course in either Trigonometry or Functions. Students who have not taken such a course are advised to consult the Department of Mathematics about summer study.

189-201A, B. CALCULUS I. (3 Credits.) Analytic geometry of straight line and circle. Limits, continuity, derivative. Differentiation of elementary functions. Applications.
PROFESSOR SOLIN, MR. E. FOX AND STAFF

189-202A, B. CALCULUS II. (3 Credits; *Prerequisite:* 189-201A, B.) The definite integral. Techniques of antidifferentiation. Applications. PROFESSOR SOLIN, MR. E. FOX AND STAFF

189-203A. BASIC PRINCIPLES AND METHODOLOGY OF STATISTICS I. (3 Credits.) Typical examples of statistical data and the use of graphical means to summarize the data. Some basic distributions arising in the natural and behavioural sciences. The logical meaning of a test of significance with applications to single observations, sums, differences, and means. The analysis of categorical and frequency data. (This course is intended for students in all disciplines and is not open to students in Major Mathematics.) PROFESSOR RUBEN

189-204B. BASIC PRINCIPLES AND METHODOLOGY OF STATISTICS II. (3 Credits; *Prerequisite:* 189-203A or equivalent.) The concept of degrees of freedom and the analysis of variability. Planning of experiments. The interrelation of two variables. Polynomial and multiple regressions. The use of correlation coefficients as exploratory tools. Basic principles of estimation and the concepts of likelihood and information. (This course is intended for students in all disciplines and is not open to students in Major Mathematics.)
PROFESSOR RUBEN

189-205A. FINITE MATHEMATICS I. (3 Credits.) An introduction to probability, vectors and matrices with applications to the social sciences. PROFESSOR SCHMIDT

189-206B. FINITE MATHEMATICS II. (3 Credits; *Prerequisite:* 189-205A.) Topics in probability and statistics, linear programming and the theory of games. PROFESSOR SCHMIDT

189-217A. MODERN ALGEBRA I. (3 Credits.) Sets; relations and operations; the natural numbers; the integers; different number bases; Pythagorian triples; congruences and diophantine equations; the rational and real numbers; complex numbers and their representations; primitive roots and De Moivre's theorem. PROFESSOR ROWLINSON AND MRS. SCHWERDTFEGER

189-218B. MODERN ALGEBRA II. (3 Credits; *Prerequisite:* 189-217A or equivalent.) Groups; rings; integral domains; division rings; fields; polynomials; Boolean algebras. PROFESSOR ROWLINSON AND MRS. SCHWERDTFEGER

189-221A, B. ANALYTICAL GEOMETRY AND VECTORS. (3 Credits; *Prerequisite:* 189-202A, B.) Vectors, lines and planes, coordinate systems in three dimensions, inner products, quadric surfaces, vector-valued functions. Applications. PROFESSOR KAUFMAN AND STAFF

189-222A, B. CALCULUS III. (3 Credits; *Prerequisite:* 189-221A, B.) Infinite series. Length, curvature; partial differentiation, multiple integration and applications. PROFESSOR KAUFMAN AND STAFF

189-223A. LINEAR ALGEBRA. (3 Credits.) Algebra of matrices and determinants, systems of linear equations. Vector spaces, linear operators and their matrix representations, unitary vector spaces, orthogonality. Eigenvalues and eigenvectors, diagonalization of Hermitian matrices. Applications. (This course covers most of the topics in 189-245, -246. It is not open to students in Major Mathematics.) PROFESSOR MELAMED

189-231A, B. MATHEMATICS FOR BIOLOGISTS. (3 Credits; *Prerequisite:* 189-202A, B.) Introductory probability theory, vectors and matrices, differential and difference equations with applications to the biological sciences. PROFESSOR TURNER AND STAFF

189-232A, B. MATHEMATICAL METHODS IN BIOLOGY AND THE BEHAVIOURAL SCIENCES. (3 Credits; *Prerequisite:* 189-231A, B or equivalent.) Topics in probability and statistics, linear programming, and game theory with applications to the behavioural and biological sciences. PROFESSORS ANDERSON AND MELAMED

189-242A. REAL ANALYSIS. (3 Credits.) (189-252A renumbered.) Real numbers. Limits and continuity, sequences. Properties of continuous functions. Introduction to metric spaces. PROFESSOR ROSENTHALL

189-243B. REAL ANALYSIS II. (3 Credits; *Prerequisite:* 189-242A.) Continuity, uniform continuity and differentiability on the real line; fundamental theorems. Taylor's theorem and applications. Infinite series. PROFESSOR HERSCHORN

189-245A, B. LINEAR ALGEBRA I. (3 Credits.) Simultaneous linear equations and inequalities. Matrices. Linear dependence, rank and inverse. Trace and determinant. Partitioning into blocks. Quadratic forms, positive definite and semidefinite matrices. Orthogonal matrices. Characteristic roots and vectors, similarity of matrices. Applications to various disciplines in science and management, with computer orientations. PROFESSORS LABUTE, STYAN AND STAFF

189-246A, B. LINEAR ALGEBRA II. (3 Credits; *Prerequisite:* 189-245A, B.) Abstract vector spaces over the real and complex numbers. Linear operations, matrix representations. Vector and operator norms. Eigenvectors and eigenvalues, Jordan canonical form. Linear, quadratic and Hermitian forms. Inner product spaces, unitary and orthogonal transformations, the adjoint of an operator, self-adjoint and normal operators. Applications. PROFESSORS LABUTE, STYAN AND STAFF

(NOTE: There will be special sections of the two above courses (189-245, -246) in which class time is devoted to individual tutorials rather than to lectures. Special notes and detailed work assignments will be distributed. The special section will take the same examination as the other sections.)

189-247A. LINEAR ALGEBRA. (3 Credits.) Matrix algebra; elementary operations; rank and inverses; determinants and square matrices; numerical solutions of simultaneous linear equations; eigenvalues and eigenvectors; unitary transformations; similarity transformations; reduction to diagonal form, defective matrices; quadratic forms and the variational principle; norms and error estimates; abstract vector spaces and linear equations; isomorphisms; coordinates, change of basis and linear transformations. Inner product spaces, orthogonality. (This course is intended for Honours Physics students and others suitably qualified.) PROFESSOR COSTLEY

189-248A. ADVANCED CALCULUS I. (3 Credits; *Prerequisite:* 189-221A, B.) Partial derivatives; implicit functions; Jacobians; maxima and minima; Lagrange multipliers. Scalar and vector fields; orthogonal curvilinear coordinates. Improper integrals; multiple integrals; arc length, volume and surface area. Line integrals; Green's theorem; the divergence theorem; Stokes' theorem; irrotational and solenoidal fields; applications. PROFESSOR TAM

189-249B. ADVANCED CALCULUS II. (3 Credits; *Prerequisite:* 189-248A.) Functions of a complex variable; Cauchy-Riemann equations; Cauchy's theorem and consequences. Taylor and Laurent expansions. Residue calculus; evaluation of real integrals; integral representation of special functions; the complex inversion integral. Conformal mapping; Shwarz-Christoffel transformation; Poisson's integral formulas; applications. PROFESSOR TAM

189-271D. ALGEBRA I. BASIC ALGEBRAIC STRUCTURES. (8 Credits.) Groups, rings and fields; intensive linear algebra, including quadratic forms and the canonical forms of linear transformations; some elementary number theory (diophantine equations and congruences); polynomial rings. PROFESSOR SCHMIDT

189-272D. ANALYSIS I. (8 Credits; *Prerequisites:* 189-221A, B, 189-222A, B.) The real number system, metric properties of R^n, convergence, contiruity, elements of Lebesgue integration, multivariable calculus, inverse and implicit function theorems, modern and classical versions of Stokes' theorem. PROFESSOR BARR

189-273D. PROBLEM SEMINAR. (4 Credits; 2 hours conference; *Corequisites:* 189-271D, -272D.) The course is designed to complement Algebra I, and Analysis I courses. Problems in other areas may be selected to suit the class. PROFESSORS BARR AND SCHMIDT

189-314A, B. ADVANCED CALCULUS. (3 Credits; *Prerequisite:* 189-222A, B.) Constrained maxima and minima. Jacobians. Multiple integration. Line and surface integrals. Theorems of Green, Stokes and Gauss. Introduction to elliptic integrals. PROFESSOR LAWRUK

189-315A, B. DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-222A, B.) First order ordinary differential equations. Linear equations with constant coefficients, Laplace transform. Series solutions. PROFESSOR LAWRUK

189-316B. FUNCTIONS OF A COMPLEX VARIABLE. (3 Credits; *Prerequisite:* 189-314A, B.) Algebra of complex numbers. Cauchy-Riemann equations. Complex integral. Cauchy's theorem. Taylor and Laurent series. Residue theory and applications.
PROFESSORS BROWN AND MELAMED

189-317A. NUMERICAL ANALYSIS. (3 Credits; *Prerequisites:* 189-222A, B, 308-200D or equivalent.) Error analysis. Numerical solutions of equations. Numerical solution of differential equations. Programming knowledge is assumed. Some laboratory work needed.
PROFESSORS EVANS AND SCHMIDT

189-318A. MATHEMATICAL LOGIC. (3 Credits.) Propositional calculus, truth-tables, calculus as a Boolean algebra, completeness, first order predicate calculus, axiomatic theories, set theory.
PROFESSOR BUNGE

189-319B. DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisites:* 189-245A, B, -315A, B.) Systems of first order equations, non-linear differential equations and stability. Fourier series, partial differential equations, boundary value problems. PROFESSOR LAWRUK

189-323A, B. INTRODUCTION TO PROBABILITY THEORY AND RANDOM VARIABLES. (3 Credits; *Prerequisites:* 189-201A, B, -202A, B, or equivalent.) Sample space of an experiment, events. Conditional probability. Statistical independence. Bayes' theorem, with applications. Random variables, univariate distribution functions. The binomial, Poisson, hypergeometric, uniform, exponential and normal distributions. Mathematical expectation. The weak law of large numbers. The Poisson process, with applications. The central limit theorem. (This course is intended for students in science, engineering and related disciplines, who have had one year of calculus.) PROFESSORS KOUNIAS AND MATHAI

189-324A, B. INTRODUCTION TO STATISTICS. (3 Credits; *Prerequisite:* 189-323A, B or equivalent.) The notion of a random sample. Sampling distributions, with particular reference to those related to the normal: X^2, F and t. Point estimation. Hypothesis testing, the notion of power function. Likelihood-ratio tests. Contingency tables, goodness-of-fit and homogeneity tests. Regression and the method of least squares, analysis of variance, with applications. Some nonparametric procedures. PROFESSORS KOUNIAS AND MATHAI

189-325B. ORDINARY DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-222A, B.) First order differential equations; second order linear equations; series solution of second order equations; Fourier series; self-adjoint boundary value problems; more on Legendre polynomials and Bessel functions. (This course is intended for Honours Physics students and others suitably qualified.) PROFESSOR MASLOWE

189-327B. NUMERICAL ANALYSIS. (3 Credits; *Prerequisites:* 189-246A, B, -317A.) Numerical methods for solving systems of linear algebraic equations, matrix inversion and eigenvalue problems. Numerical solution of differential equations. PROFESSOR ZLOBEC

189-328B. COMPUTABILITY AND MATHEMATICAL LINGUISTICS. (3 Credits.) Propositional calculus, switching circuits, computability, recursive functions, Turing machines, automata, self-reproducing machines, formal and natural languages. Post canonical languages, phrase structure and transformational grammars. PROFESSOR BUNGE

189-329D. THEORY OF INTEREST AND LIFE INSURANCE. (6 Credits; *Prerequisites:* 189-201A, B, -202A, B.) Simple and compound interest, discount, annuities certain, sinking funds, bonds,

mortgage amortization, depreciation, calculation of life annuities, premiums and reserves on life insurance policies. PROFESSOR SOLIN

189-333A. ANALYSIS. (3 Credits; *Prerequisite:* 189-242A.) Riemann-Stieltjes integral; sequences and series of functions; metric spaces; connectedness; completeness and compactness; Weierstrass approximation theorem; Fourier series. PROFESSOR HERSCHORN

189-346B. NUMBER THEORY. (3 Credits.) Divisibility. Congruences. Quadratic reciprocity. Diophantine equations. Arithmetical functions. PROFESSOR ROSENTHALL

189-348A. TOPICS IN GEOMETRY. (3 Credits.) Isometry: symmetry and groups. Non-euclidean geometry. PROFESSOR MOSER

189-349B. TOPICS IN GEOMETRY. (3 Credits.) Convexity: isoperimetric and combinatorial-geometric problems. Rubber-sheet geometry: classification of surfaces, path problems, map-colour problems. PROFESSOR MOSER

189-356A. INTRODUCTION TO PROBABILITY. (3 Credits.) General foundations and applications. Combinatorial probability. The binomial, Poisson, hypergeometric distributions. Simple random walks. Continuous distribution functions. The uniform, exponential, normal distributions. Introduction to Markov processes. PROFESSOR SESHADRI

189-357B. INTRODUCTION TO STATISTICS. (3 Credits; *Prerequisite:* 189-356A or equivalent.) Data analysis. Measures of location and dispersion. Derived probability distributions. The t, chi-square, F-distributions. Estimation and hypothesis testing. Introduction to Bayesian and decision theory methods. Power of tests. The chi-square goodness of fit test. Introduction to regression analysis, and analysis of variance. PROFESSOR SESHADRI

189-360B. GROUPS AND THEIR REPRESENTATIONS. (3 Credits.) Elements of group theory. Symmetry groups. Unitary vector spaces, linear operators and their matrix representations, invariance of functions and operators, classification of eigenfunctions. Reducibility, Schur's lemmas, general orthogonality relations, character tables. Kronecker product and adjoint representations, Hermitian invariants, Clebsch-Gordon series. Characters of the symmetric group. PROFESSOR ROTH

189-369D. THEORY OF FINITE DIFERENCES AND LIFE CONTINGENCIES. (6 Credits; *Prerequisites:* 189-221A, B, 222A, B.) Finite differences, theory of interest and of single and multiple life functions. MR. GARDNER

189-371D. ALGEBRA II. (6 Credits; *Prerequisite:* 189-271D.) Commutative algebra (modules over a principal ideal domain, extensions of the rationals, unique factorization domains); field theory to include the fundamental theorem of Galois theory; group theory continued up to the Sylow theorems; the Jordan-Hoelder theorem. PROFESSOR SUSSMAN

189-372D. ANALYSIS II. (8 Credits; *Prerequisite:* 189-272D.) Metric spaces; Lebesgue-Stieltjes integration; series expansions of functions (including L_2 theory); power series; analytic functions; contour integration; Cauchy's theorem and a wide variety of consequences, normal families. PROFESSOR HERZ

189-373D. PROBLEM SEMINAR. (4 Credits; 2 hours conference; Not given in 1973-74.) Problems in related areas to suit the class.

189-374D. ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS. (6 Credits; *Prerequisites:* 189-245A, B and 189-272D; *Corequisite:* 189-372D.) Existence and uniqueness theorems; systems of equations; Sturm-Liouville equations; power series solutions and special functions; homogeneous equations, phase space. First and second order partial differential equations; the Laplace wave and heat equation; Fourier transforms, distributions, Hilbert space methods. PROFESSOR EVANS

189-377B. NUMBER THEORY. (3 Credits.) Partitions. Geometry of numbers. Dirichlet series. Primes in an arithmetic progression. Algebraic numbers and ideas. PROFESSOR BROWN

189-380D. GEOMETRY AND TOPOLOGY. (6 Credits; *Prerequisites:* 189-271D, 189-272D.) A study of curves and surfaces with a view to motivating basic notions of differential geometry, algebraic topology and differential topology. PROFESSOR RUSSELL

189-410D. MATHEMATICAL ANALYSIS OF SYSTEMS. (6 Credits; *Prerequisites:* 189-245A, B, -314A, B, -315A, B.) Further topics in linear algebra. Extrema of functions. Introduction to calculus of variations. Systems of differential equations. Generalized mechanics. Linear systems. Applications to physical and biological sciences. PROFESSOR ROTH

189-416A. COMBINATORICS. (3 Credits; *Prerequisites:* i) 189-222A, B, ii) one of 189-217A, -218B, -223A, -231A, B, -245A, B or equivalents.) An introductory half-course in combinatorics intended for Mathematics Majors students and others who lack the time or the prerequisites to enrol in 189-461D (Combinatorial Mathematics). The lectures of the two courses may coincide (for the First term); however, students of 189-416A will be examined at the end of the First term, while students in 189-461D will continue on in the Second term and be exposed to current research papers. (Honours credit is available only through registration in 189-461D.) PROFESSOR MOSER

189-417A. MATHEMATICAL PROGRAMMING. (3 Credits; *Prerequisites:* 189-245A, B, -314A, B or equivalent.) Linear programming; simplex method; duality theory. Nonlinear programming; Kuhn-Tucker optimality conditions. Numerical methods for solving unconstrained and constrained maximization problems. Applications to realistic problems. Computer programming knowledge is assumed. PROFESSOR ZLOBEC

189-423A. STATISTICAL METHODS I. (3 Credits; *Prerequisites:* 189-323A, B and -245A, B or equivalent.) Simple and multiple linear regression. Least squares estimators and their properties. Tests of hypotheses; the *F*-test. One- and two-way analysis of variance. The general linear model. Prediction and confidence intervals. Orthogonal and non-orthogonal designs. Weighted least squares. PROFESSOR MATHAI

189-424B. STATISTICAL METHODS II. (3 Credits; *Prerequisites:* 189-323A, B, -324-B or equivalent.) Tests of goodness of fit: Pearson's chi-square test for multinomial populations. Contingency tables. Sample distribution function. Nonparametric procedures including the Cramér-von Mises and Kolmogorov-Smirnov tests. Order statistics. Tests for normality. PROFESSOR SESHADRI

189-425A. SAMPLING SURVEY THEORY AND APPLICATIONS. (3 Credits; *Prerequisites:* 189-323A, B, -324A, B or equivalent.) Advantages of sampling compared to complete enumeration, with special reference to human populations and public opinion polls (greater speed in obtaining and analyzing results, smaller cost, greater accuracy of results). Requirements of a good sampling scheme. Main types of sampling and their properties. Use of adjustments based on supplementary information. PROFESSOR PAPAIOANNOU

189-447B. ELEMENTARY STOCHASTIC PROCESSES. (3 Credits; *Prerequisites:* 189-245A, B and 189-323A, B.) Random walk on the integers and gambler's ruin problem; the Galton-Watson branching process; Markov chains and their applications in the physical and social sciences; birth and death processes and their applications to biological growth problems. PROFESSOR ANDERSON

189-451A. COMPLEX ANALYSIS I. (3 Credits; Not given in 1973-74.) Maximum modulus theorem, Rouche's theorem, Weierstrass and Vitali's theorem on convergence of holomorphic functions, normal families. Conformal mapping, harmonic functions, entire and meromorphic functions.

189-452B. COMPLEX ANALYSIS II. (3 Credits; Not given in 1973-74.) Selected topics from the Theory of a Complex Variable.

189-455D. FLUID DYNAMICS. (6 Credits.) Kinematics. Dynamics of general fluids, inviscid fluids, Navier-Stokes equations. Exact solutions of the Navier-Stokes equations. Perturbation methods. Flow at small Reynolds number. Flow at high Reynolds number. Stability. PROFESSOR TAM

189-456D. MATHEMATICAL STATISTICS. (6 Credits.) Probability and distribution theory including discussion of some basic distributions in p-space. Regression and correlation theory. Laws of large numbers and central limit theorem. Sampling theory (including large-sample theory.) Likelihood functions and information matrices. Hypothesis testing, estimation theory and decision theory. Distribution-free procedures. PROFESSOR RUBEN

189-461D. COMBINATORIAL MATHEMATICS. (6 Credits; *Prerequisites:* 189-246A, B, -242A or equivalent. This course will be given in alternate years; Not given in 1973-74.) After a study of fundamentals (partitions and compositions, principle of inclusion and exclusion, etc.) students will be introduced to combinatorial aspects of several fields (graph theory, designs, set theory, group theory, geometry, number theory, etc.) from classical up to and including current research.

189-470A. OPTIMIZATION. (3 Credits; *Prerequisites:* 189-271D, -272D.) Classical calculus of variations, discrete dynamic programming (deterministic and stochastic), continuous processes of dynamic programming. PROFESSOR SANCHO

189-471D. DIFFERENTIAL GEOMETRY. (6 Credits; *Prerequisite:* 189-380D.) The geometry of differentiable manifolds. PROFESSOR OKUBO

189-472D. REAL AND COMPLEX ANALYSIS. (8 Credits; *Prerequisites:* 189-271D, -372D, -451A.) The theory of measure and integration, basic Hilbert and Banach space theory, complex analysis from a modern viewpoint. PROFESSOR CHOKSI

189-474A. ORDINARY DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-374D.) Topics to be selected from the following: existence and uniqueness theorems, dependence of solutions on parameter and initial data, stability theory, perturbation methods, singular points, periodic systems, two point boundary-value problems. PROFESSOR LANGFORD

189-475B. PARTIAL DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-374D.) A continuation of topics introduced in 189-374D. PROFESSOR LANGFORD

189-478A. NUMERICAL ANALYSIS. (3 Credits; *Prerequisite:* 189-372D.) Basic error analysis; numerical solutions of nonlinear equations; interpolation; numerical integration and numerical solutions of ordinary differential equations. PROFESSOR EVANS

189-479E. NUMERICAL ANALYSIS. (3 Credits; *Prerequisites:* 189-271D, -478A.) Numerical analysis in normed spaces. Finite and infinite systems of equations. Integral, ordinary and partial differential equations. Finite differences. Numerical realization of the Ritz-Galerkin methods. Convergence and stability of numerical algorithms. PROFESSOR ZLOBEC

189-481D. HIGHER ALGEBRA. (6 Credits.) The rudiments of category theory, including adjoint functors; noetherian, artinian and semi-simple rings; representations of finite groups; a continuation of commutative algebra, prime ideals, localisation and completion; some algebraic number theory and a deeper study of field extensions. PROFESSOR LABUTE

189-483A. TOPOLOGICAL SPACES. (3 Credits.) Bases, connectedness, convergence, product and quotient spaces, metrization, compactness, function spaces.
PROFESSOR GOWRISANKARAN

189-485A. METHODS OF APPLIED MATHEMATICS I. (3 Credits.) Introduction to the theory of Hilbert spaces with applications to integral equations and integral transforms.
PROFESSOR ROTH

189-486B. METHODS OF APPLIED MATHEMATICS II. (3 Credits.) Partial differential equations with applications to initial and boundary value problems. Theory of distributions and Green's functions. Methods of solution by complex variables, eigenfunction expansions and transform methods. PROFESSOR TURNER

189-487D. ADVANCED PROBABILITY THEORY. (6 Credits.) Distribution functions on R^1. Basic measure and integration theory, with special reference to probability measures on (R^1,B^1) and their correspondence with distribution functions. Random variables. Expectation, including basic inequalities. Independence. Conditional probability. Convergence concepts, laws of large numbers. Characteristic functions. Central limit theorem and its ramifications. Random walks.

189-488D. ALGEBRAIC TOPOLOGY. (6 Credits.) Introduction to homology and homotopy theory. PROFESSOR RATTRAY

189-489A. MATHEMATICAL LOGIC. (3 Credits.) Propositional calculus and first order predicate calculus; completeness, compactness, and normal form theorems; theorems of Herbrand, Craig, Beth, and Gentzen. PROFESSOR NEGREPONTIS

189-490B. MATHEMATICAL LOGIC. (3 Credits). Alternately either (1) an introduction to recursion theory, undecidability theorems of Godel and Church, recursively enumerable sets, degrees; or (2) an introduction to model theory, ultraproducts, saturated models, elimination of quantifiers, decidability. PROFESSOR NEGREPONTIS

METEOROLOGY (195)

Burnside Hall; Department Office, Room 722, Telephone, 392-4461.

Meteorology is the study of the earth's atmosphere from the ground up to the heights where it fades into interplanetary space. Most of this atmosphere (80 per cent by mass) is within about 40,000 feet of the surface, and it is here that much of the familiar "weather" occurs; above this height lies the stratosphere, where there still are winds and pressure-patterns, but clouds and up-and-down currents of air are scarce. The atmosphere can be studied as a large ocean of gas by the methods of fluid dynamics; winds, temperature fronts, and planetary waves are the ideas involved in such a program. Or it can be studied from the point of view of its detailed physics: how cloud droplets make rain, or how sunlight warms the ground, and the ground warms the air above it by radiation and convection.

Meteorology is not weather-forecasting, though forecasting is one of the objectives of meteorology. The point of view is always quantitative; meteorology is physics, and like other parts of physics it attempts to devise theoretical models of its complex subject, of the motion and composition of the air, and of its interaction with radiation and the solid or liquid surface.

Meteorology is a good subject when coupled with an approved sequence in mathematics and physics. The program may lead to a B.Sc. with a Major in Meteorology.

In the Honours program in Meteorology there are various options, depending on the student's particular interests. It is, in all cases, a rigorous and specialized study of the theory and practice of meteorology.

Graduates in Honours Meteorology and in Honours Physics, Mathematics, or equivalent courses, can become professional meteorologists through the training offered in

the M.Sc. program in Meteorology. Good facilities exist for Ph.D. studies in several areas of current meteorological research.

Graduates who have a Major in Meteorology often find employment in applied work.

Faculty Programs

For details, see Faculty Programs, page 169.

Major in Meteorology

Consult Professor Rogers, Room 817.

In view of the fact that meteorology is the physics and mathematics of the atmosphere, the Department will recognize a course of study as a "Major Program in Meteorology" if, in addition to the full sequence of general meteorology courses (195-210D, -320A, -321B, -410D and -420D), it contains the equivalent of the following program in Physics and Mathematics:

Mathematics 189-223A, -314B, -315B; Physics 198-231A, -232B, -233A, plus additional approved courses in such fields as Physics, Mathematics, Computer Science and Geography. In total, 54 credits are specified, of which 48 are compulsory. The details of the Program are available in the Department.

Honours in Meteorology

Consult Professor Derome, Room 711.

Prerequisite: High standing in Mathematics and Physics. An advanced program in Physics and Mathematics, with Meteorology courses from those listed below under "Course descriptions". There are three options: Dynamical, Physical and Climatological Meteorology. All of these require the same program in the U1 year (30 credits, of which 27 are compulsory and 3 are elective.) The U2 year is different in the three options but will, in all cases, have 26 credits in compulsory courses and 4 elective. In all options the U3 year will concentrate on the 600-level courses given in the Meteorology Department. U3 has 23 compulsory credits and 7 elective. The Honours option in Dynamic Meteorology is as follows:

U1: Mathematics 189-314A, -223A, -315B; Physics 198-250A, -259A, -260B, -269B; Meteorology 195-210D; 3 Credits elective.

U2: Mathematics 189-317A, -319A, -316B, -327B; Physics 198-351A, -353D; Meteorology 195-320A, -321B. 4 Credits elective.

U3: Mathematics 189-455D; Meteorology 195-652D, -654D, -655D, -656D. 7 Credits elective.

Course Descriptions

195-210D. GENERAL METEOROLOGY. (6 Credits; 1 lecture and tutorials.) History, instruments and data. Simple and complex climatic elements; world, regional and local climates. Physical properties of the atmosphere; thermodynamics; humidity, clouds and precipitation. Local and major wind systems. Fronts and air masses. Synoptic analysis and principles of weather forecasting. PROFESSOR ORVIG

195-220B. RADIATIVE TRANSFER IN THE ATMOSPHERE. (3 Credits; 3 hours.) Radiation laws, solar and terrestrial radiation, solar radiation and the earth's atmosphere. The atmosphere in radiative equilibrium. PROFESSORS ROGERS AND LEIGHTON

195-320A. THERMODYNAMICS OF THE ATMOSPHERE. (3 credits; 3 hours lectures; *Prerequisite:* Permission of instructor.) Classical thermodynamics applied to atmospheric air. Meteorological thermodynamic charts. Phase changes of water. Stability and convection. Diffusion and turbulent transfer of heat and particulates.
PROFESSOR ROGERS AND DR. ROBERTSON

195-321B. CLOUD PHYSICS. (3 Credits; 3 hours lectures; *Prerequisite:* Meteorology 195-320A.) Nucleation of water and ice. Growth of cloud droplets and the development of precipitation. Structure of clouds and rain; methods of observation.
PROFESSOR ROGERS AND DR. ROBERTSON

195-410D. INTRODUCTORY DYNAMIC METEOROLOGY. (6 Credits; 3 hours lectures and laboratory; *Prerequisites:* Mathematics 314A and 315B, Meteorology 320A, 321B or equivalents; Meteorology 420D should be taken concurrently.) The equations of motion; balanced flow. The vertical structure of wind and pressure systems. Circulation and vorticity; development theorems. Waves in the atmosphere; instability. Numerical forecasting. PROFESSOR DEROME

195-420D. INTRODUCTORY SYNOPTIC METEOROLOGY. (6 Credits; 1 hour lecture, 3 hours laboratory; *Prerequisite:* Meteorology 320A, 321B; *Corequisite:* Meteorology 410D or permission of instructor.) An introduction to meteorological analysis. Effects of boundary layer processes on large-scale energetics of the atmosphere. Diagnostic studies of the development of weather systems. The general circulation. Practical analysis of weather charts. Graphical and computer methods. PROFESSOR DIETRICH

195-651D. PHYSICAL METEOROLOGY. (6 Credits; 2 hours.) Thermodynamics of the atmosphere. Instability and convection. Cloud physics and storm structure. Radar applications. Solar and terrestrial radiation. Radiation calculations and diagrams. Energy budget of the atmosphere. PROFESSORS HITSCHFELD, ROGERS AND LEIGHTON

195-652D. DYNAMIC AND NUMERICAL METEOROLOGY. (6 Credits; 2 hours.) The equations of motion. Circulation and vorticity, development theorems. Linear perturbations, instability. Mathematical models of the atmosphere; application of difference equations and their numerical solution. PROFESSORS DEROME AND DIETRICH

195-653D. CLIMATOLOGY. (3 Credits; 1 hour.) The general circulation of the atmosphere and the ocean. Climatic classification. The heat and water balance, climatic change. PROFESSOR ORVIG

195-654D. SYNOPTIC METEOROLOGY. (6 Credits; 4 hours.) A laboratory course to complement Meteorology 651 to 653. Analysis of weather charts and diagrams, forecast techniques, diagnostic treatments of atmospheric dynamics and weather processes. Modern statistical and computer methods are used wherever suitable. PROFESSOR VOWINCKEL AND STAFF

195-655D. SEMINARS "TOPICS IN METEOROLOGY". (3 Credits; 1 hour.) One-hour discussions on special topics in meteorology, e.g. hurricanes; tornadoes; charge generation; ozone. STAFF

195-656D. DAILY WEATHER DISCUSSION. (2 Credits; 2½ hours.) One-half hour briefing on the current weather situation. PROFESSOR VOWINCKEL

MICROBIOLOGY AND IMMUNOLOGY (528)

Pathological Institute, 3775 University Street, Room 515,
Telephone, 842-1251, ext. 1771.

Microbiology is the study of minute forms of life, which are best examined using a light or electron microscope. It is one of the youngest sciences, despite the fact that the simplest microscope was invented over three hundred years ago, and the existence of microbes was suspected long before that. In its relatively short history, however, microbiology has had tremendous impact in such varied fields as medicine, agriculture, genetics, forestry and industry.

The main groups of microorganisms are the bacteria, protozoa, fungi and viruses, which are now included under the broad term "microbiology." These organisms, although so small as to be measured in thousandths of an inch, have characteristic structures and life habits. Many of their complex chemical, physical and genetic properties are shared with man and other higher organisms. Because of their rapid growth rate, they are widely used as "experimental animals" in studying cell processes. Microorganisms of all kinds are widespread in man's environment and are important in his everyday life in many ways. Some cause diseases of plants, animals or men; others are useful in bread-making, brewing, ripening of cheese, wine-making, manufacture of vaccines, antibiotics, and pure chemicals; some are the cause of food spoilage; and still others are of vital importance in maintaining soil fertility or in the control of forest insect pests.

Opportunities for careers in pure or applied microbiology are many and varied. For interested students, the following introductory reading is suggested:

De Kruif, *The Microbe Hunters* (Pocket Books of Canada)

Camus, *The Plague* (Penguin)

Sistrom, *Microbial Life* (Modern Biology Series).

Faculty Program

For details, see Faculty Programs, page 169.

Major Program

There are four options available within our Major program: Immunology, Microbial Physiology, Pathogenic Microorganisms and Virology. All four options require the Biology Core Curriculum (see page 179) plus Chemistry 180-222A, B and 180-204A.

Immunology Option, 65 Credits — U1: Chemistry, 180-214B; U2: Biology 177-302A, B, 177-310B, Microbiology 538-311A, 528-314B; U3: Microbiology 528-426A, 528-461D, 528-471D.

Microbial Physiology Option, 65 Credits — U2: Biology 177-302A, B, 177-310B, Microbiology 528-311A, 528-314B; U3: Microbiology 528-423A, 528-451B, 528-471D. 9 additional Credits selected in consultation with the Departmental Adviser in U2 or U3.

Pathogenic Microorganisms Option, 68 Credits — U2: Microbiology 528-311A, 528-314B, either 528-313B or 528-315B; U3: Microbiology 528-421A, 528-422B, 528-425B, 528-471D. 9 additional Credits selected in consultation with the Departmental Adviser in U2 or U3.

Virology Option, 68 Credits — U2: Biology 177-302B, 177-310B, Microbiology 528-311A, 528-314B; U3: 528-424A, 528-425B, 528-471D. 9 additional Credits selected in consultation with the Departmental Adviser.

Consult: Dr. P. M. Cooke, Room 508, Pathological Institute, 3775 University Street, Telephone 842-1251, ext. 1772.

Course Descriptions

528-311A. BIOLOGY OF MICROORGANISMS. (4 Credits; *Prerequisite:* Biology Core Curriculum, U1; *Corequisite:* Biology Core Curriculum, U2; 3 hours lectures, 3 hours laboratory.) A comprehensive treatment of introductory microbiology bearing specifically on the biological properties of microorganisms. The laboratory sessions introduce general techniques peculiar to the handling of microorganisms.

528-314B. IMMUNOBIOLOGY. (3 Credits; *Prerequisite:* Biology Core Curriculum, U1; *Corequisite:* Biology Core Curriculum, U2; 3 hours lectures, 3 hours laboratory every other week.) A comprehensive study of the fundamental principles of immunology.

528-315B. THE PATHOGENIC FUNGI. (3 Credits; *Prerequisite:* Biology Core Curriculum, U1 & U2; 2 hours lectures, 3 hours laboratory; alternate year, not offered in 1973-74). A study of the morphological, cultural and physiological characteristics of the pathogenic fungi, their pathogenic activities and the etiology and epidemiology of fungus diseases of importance in human and veterinary medicine.

528-313B. PARASITOLOGY. (3 Credits; *Prerequisite:* Biology Core Curriculum, U1 & U2; 2 hours lectures, 3 hours laboratory; alternate years, offered in 1973-74.) A study of the biology, bionomics, epidemiology, pathogenicity and diagnosis of the parasites of man.

528-421A. SYSTEMATIC BACTERIOLOGY. (3 Credits; *Prerequisite:* Microbiology 528-311A; 3 hours lectures, 3 hours laboratory.) A study of the taxonomy of bacteria with a review of classical systems and detailed coverage of modern methods. Classification of the bacteria with greater emphasis on the pathogenic groups.

528-422B. PATHOGENIC BACTERIA. (3 Credits; *Prerequisites:* Microbiology 528-314B, 528-421A; 3 hours lectures, 3 hours laboratory.) A study of selected pathogenic bacteria emphasizing virulence factors, modes of transmission, spread and control.

528-423A. MICROBIAL PHYSIOLOGY. (3 Credits; *Prerequisites:* Microbiology 528-311A, 528-312B; 3 hours lectures.) A broad introduction to the physiology of microorganisms. The chemical activities of microbes will be studied from a basic knowledge of microbiology and biochemistry.

528-451B. TECHNIQUES IN MICROBIAL PHYSIOLOGY. (3 Credits; *Prerequisite:* Microbiology 528-423A; 1 hour lecture, 6 hours laboratory.) An introductory course in experimental microbial physiology. The basic techniques of manipulation and instrumentation in the study of cellular forms will be covered. Experiments will be illustrative of the fundamental properties of microorganisms. Restricted to students in Microbial Physiology Major or by special permission of the Department.

528-424A. FUNDAMENTAL VIROLOGY. (3 Credits; *Prerequisite:* Biology Core Curriculum, U2; 2 hours lectures, 3 hours laboratory.) A study of the fundamental properties of viruses (bacterial, plant and animal) and their interaction with host cells. Emphasis will be on phenomena occurring at the cellular level.

528-425B. PATHOGENIC VIRUSES. (3 Credits; *Prerequisites:* Biology Core Curriculum, U2 & Microbiology 528-314B; 2 hours lectures, 3 hours laboratory.) A study of the properties and activities of the major groups of mammalian viruses and the epidemiology of viral infections.

528-426A. ADVANCED IMMUNOBIOLOGY. (3 Credits; *Prerequisites:* Biology Core Curriculum, U2 & Microbiology 528-314B; 3 hours lectures.) A discussion of recent advances and theories of humoral and cellular immunity. Applications of immunobiology to various fields of biology. (Including transplantation, cellular mechanisms, etc.)

528-461D. TECHNIQUES IN IMMUNOBIOLOGY. (6 Credits; *Prerequisites:* Biology Core Curriculum, U2 & Biology 177-302B; *Corequisite:* Microbiology 528-426A; 1 hour lecture, 6 hours laboratory.) A study of advanced methods as used in various areas of immunobiology. Restricted to students in the Immunology Major or by special permission of the Department.

528-471D. RESEARCH OR SEMINAR IN MICROBIOLOGY AND IMMUNOLOGY. (3 Credits.) Restricted to Major students in the Department and related to the student's specific option.

PHARMACOLOGY AND THERAPEUTICS (549)

549-461D. GENERAL PHARMACOLOGY. (6 Credits; *Prerequisite:* Suitable preparation in biochemistry and physiology and permission of the Department.) A course covering basic interactions between chemical agents and living processes.

PHYSICS (198)

Macdonald Physics Building, Room 105, 392-5130.

Physics is in many ways the parent of the other natural sciences and its discoveries and laws continually affect their development. Its range and scope extend in space and time from subnuclear particles to the universe itself. The subfields of physics such as mechanics, thermodynamics, electricity, atomic physics and quantum mechanics, to mention but a few, permeate all other scientific disciplines.

There are two main undergraduate programs in Physics at McGill: the Major and the Honours. The Major program is open to all holders of the DCS in Physical Science (see page 45). It offers a broad training in classical and modern physics and yet leaves room for the student to take a meaningful sequence of courses in two other areas. Flexibility and accessibility are two features of the Major program. The Honours program is more highly specialized and the courses are more demanding. High standing in collegial mathematics and physics is a requirement for admission. The Honours program is appropriate for students who wish to make an in-depth study of the subject in preparation for graduate work and an academic or professional career.

Many aspects of physics permeate other scientific fields and people trained in physics are employed in industry, government, and educational systems where they find many challenges as teachers, researchers, administrators and in the rapidly developing area of scientific business.

Program Information

COLLEGE EQUIVALENT STUDENTS

The Department offers a sequence of required courses in the E1 and E2 years in the Biological Sciences stream (-E10A, -E11B, -E20A, B) and in the Physical Sciences stream (-E15A, -E14B, -E21A, B). The E1 courses in these sequences are retained for 1973-74 in order to accommodate transfer students. The terminal course in the 'advanced' sequence (-E22A) is also retained as are the optional courses -E25B and -E27B.

Students with satisfactory grades in 198-E10A and -E11B may complete the physics requirements for both the Physical Sciences and Biological Sciences sequences by taking 198-E23A and -E21B in their E2 year in lieu of 198-E20B. Students in E2 Biological Sciences who have credit for one semester in Physics but who do not have the prerequisites for 198-E20B may remove this deficiency by taking 198-E26A.

UNIVERSITY STUDENTS

Students wishing to register in one of the undergraduate programs of the Department must consult with the Department and obtain the appropriate Study Plan Form. They will then be assigned an Academic Adviser from the staff of the Department.

HONOURS

Professor W. M. Martin (392-5129), Macdonald Physics Building, Room 106.

MAJOR AND FACULTY PROGRAMS

Professor M. P. Langleben (392-5127), Macdonald Physics Building, Room 60.

The Diploma of Collegial Studies in Physical Sciences is sufficient for admission to the Major and Faculty programs. High standing in Mathematics and Physics and satisfactory performance in the placement examination are required for admission to Honours. The placement examination is held about ten days after the commencement of lectures. Students may register in Honours after they have obtained provisional Honours forms from the Department. This registration will be confirmed if they succeed in the placement examination.

HONOURS PROGRAM

U1 1973-74

Mathematics 189-248A, -249B, -247A, -325B; Physics 198-251A, -252A, -259D, -261B, -262B. 25 Credits.

U2 1973-74

Physics 198-328A, -351A, -353B, -357D, -359B, -365A, one approved course 3 Credits. 25 Credits.

U3 1973-74

Physics 198-451A, -452D, -459D, three of Mathematics 189-360B, Physics 198-454B, -457A, -458A, -467B.

A student whose average in the *required* courses in any year falls below GPA 2.8, or whose mark in any individual *required* course falls below 55% may not register in the Honours program the following year except with the permission of the Department.

MAJOR PROGRAM

The Department's requirements for the program are:

A) A core of 38 Credits as follows: Mathematics 189-222A, -223A, -315A, B; Physics 198-231A, -232B, -233A, -235B, -328B, -346D, -432A, and either -439A or -449B. (The student may take *both* 198-439A and -449B if he wishes, for a total of 6 Credits.)

B) 15 Credits chosen from the following list: Mathematics 189-314A, -317A, -319B; Physics 198-214B, -219A, -237B, -314A, -331A, -334B, -341B, -431A, -434B, -437B, -438B, one approved course 3 credits, not listed above.

Mathematics 189-222A, -223A, -315A, B and Physics 198-235B must be completed in U1. While the other courses may be taken at any time subject to prerequisite conditions, it is strongly recommended that they be taken in the year indicated by the course number.

MAJOR IN PHYSIOLOGY AND PHYSICS

See Department of Physiology, page 221.

FACULTY PROGRAMS

For details, see Faculty Programs, page 169.

Medals

Attention is drawn to the Anne Molson Gold Medal in Mathematics and Natural Philosophy, and to the Horace Watson Gold Medal in Physics.

Course Descriptions

COLLEGE EQUIVALENT COURSES

198-E10A. GENERAL PHYSICS I. (3 Credits; 4 hours, including laboratory.) Mechanics and Waves: an introduction to the laws of mechanics, light and sound.
PROFESSORS de TAKACSY, MOORE, MR. LANDRY AND DR. LAFLEUR

198-E11B. GENERAL PHYSICS II. (3 Credits; 4 hours, including laboratory.) Energy and Modern Physics: heat and statistical physics.
PROFESSORS de TAKACSY, MOORE, MR. LANDRY AND DR. LAFLEUR

198-E14B. MECHANICS AND KINETIC THEORY. (3 Credits; 2 hours lectures; 3 hours laboratory and conferences.) PROFESSORS AUSTIN AND STANSBURY

198-E15A. WAVE MOTION: SOUND AND LIGHT. (3 Credits; 2 hours lectures; 3 hours laboratory and conferences.) PROFESSORS AUSTIN AND MARSHALL

198-E20A, B. ELECTROMAGNETISM. GENERAL PHYSICS III. (3 Credits; 4 hours, including Laboratory; *Prerequisites:* Physics E10A and E11B, or E26A.) Ampere and volt. Ohm's Law. D.C. circuits. Capacitance and inductance. RC and LC circuits. Oscilloscope. Electrical measurements. Transistors. Control systems. Feedback.
PROFESSOR de TAKACSY, MRS. GURR AND MR. LANDRY

198-E21A, B. ELECTRICITY AND MAGNETISM. (3 Credits; 3 hours lecture, 3 hours laboratory; *Prerequisites:* Physics E14B and E15A, Mathematics E14A and E15A, B.) D.C. circuits and measurements. Electric field and potential. Capacitance. Magnetic field and force. Induced e.m.f. A.C. circuits. PROFESSORS WALSH, HARRIS AND MARTIN

198-E22A. ELECTRICITY AND MAGNETISM. ADVANCED SECTION. (3 Credits; 3 hours lecture, 3 hours laboratory; *Prerequisites:* Physics E16A and E17B, or permission of the instructors.) DC and AC analysis, Electric Fields, Capacitance, Magnetic Fields, Inductance, Maxwell's Equations, Plane Waves. PROFESSORS POUNDER AND ADDISON

198-E23A. MECHANICS. (3 Credits; 3 hours; *Prerequisites:* 198-E10A, -E11B; *Corequisite:* 189-E15A. Description of Motion. Introduction to Vector Mechanics. Particle Kinematics. Relative Motion. Laws of Motion. Conservation Laws of Momentum and Energy. Motion in a Circle. Simple Harmonic Motion. Kinetic Theory of Matter. This course is not open to students with credit in 198-E14B. PROFESSOR LANGLEBEN

198-E25B. TOPICS IN CONTEMPORARY PHYSICS. (3 Credits; *Prerequisite:* Physics E22A.) Selected topics from electromagnetism, quantum physics, nuclear physics, particle physics and solid state. PROFESSOR MATHISON

198-E26A. MECHANICS. (3 Credits; 4 hours including laboratory.) A remedial course for E2 students in Biological Sciences who have one semester of physics but lack prerequisites for E20B. The course consists of selected topics and experiments from E10A and E11B dealing with introductory mechanics and the conservation laws.
PROFESSOR de TAKACSY AND MRS. GURR

198-E27B. MODERN PHYSICS. (3 Credits; *Prerequisite:* Physics E21A.) Photons and quanta. Black body radiation. Energy levels. Atoms and nuclei. Photoelectric effect. X-rays. Relativity. Wave-particle duality. Radioactivity. Nuclear energy. PROFESSOR SHARP

U1 COURSES

198-200A. PHYSICAL SCIENCE I. (3 Credits; 3 hours lectures.) This course and 180-200B (Department of Chemistry) are intended for non-Science students at any level. They are not open to students who have taken or are taking other courses in Physics or Chemistry. The two courses are intended to be taken sequentially, but either may be taken by itself. Basic astronomy and physics. Philosophical, social and moral aspects of physical science. Individual projects. Reading assignments, field trips, conferences. PROFESSOR AUSTIN

198-214B. ASTROPHYSICS. (3 Credits.) An introduction to astronomy and astrophysics with emphasis placed on methods of observations. Astronomy of time and position; solar system; stars; stellar structure and evolution; galaxies. PROFESSOR MORRIS

198-219A. STATISTICAL TREATMENT OF EXPERIMENTAL DATA. (3 Credits; 3 hours lectures.) Errors in physical measurement. Probability distributions. Fitting of experimental data. Design of experiments. PROFESSOR LANGLEBEN

198-224B. PHYSICS OF MUSIC. (3 Credits; 2 hours, conference 1 hour; Limited enrolment.) An introductory course requiring little mathematical background. Topics include harmonic motion, wave-forms and wave motion; vibrating strings and air columns; loudness, pitch and timbre; selected string, woodwind, brass, percussion and keyboard instruments; dissonance and scales; recording and reproduction of music; acoustics. PROFESSOR LANGLEBEN

198-231A, B. MECHANICS. (4 Credits; 3 hours lectures, laboratory alternate weeks; *Text* — Skinner, *Mechanics.)* Kinematics. Newton's Laws. Conservation Laws and Symmetry Principles. Two-body Problems. Motion of a Rigid Body. Oscillating Systems. Lagrange's Equations.
PROFESSOR MARK

198-232A, B. ELECTRICITY AND MAGNETISM. (4 Credits; 3 hours lectures, laboratory alternate weeks.) Electrical measurements; network theorems, resonant circuits, nonsinusoidal waves; semiconductors and modern devices. Electromagnetic theory, propagation of electromagnetic waves. PROFESSORS HEDGCOCK AND MUIR

198-233A. THERMAL PHYSICS. (4 Credits; 3 hours lectures, laboratory alternate weeks.) Temperature, heat, work, first law of thermodynamics, kinetic theory. The second law of thermodynamics, statistical mechanics, probability distributions. PROFESSOR MARTIN

198-235B. MATHEMATICAL PHYSICS. (3 Credits; 3 hours lectures; *Prerequisite:* Mathematics 189-223A; *Corequisite:* Mathematics 198-315B.) Harmonic motion of simple and continuous systems with examples from mechanics and from electrical circuits; the motion of "imperfect" or perturbed systems; linear response; the discussion of heat flow, fluid flow, and electrical conductivity in two dimensional systems. PROFESSOR HARRIS

198-237B. NUCLEAR ENERGY AND ITS APPLICATIONS. (3 Credits; 3 hours lectures.) Concepts of nuclear structure with emphasis towards the understanding of nuclear energy sources and radio isotopes. Comparison of various nuclear power systems. Uses of radio isotopes. Health aspects of radioactivity. Stress will be laid on the physical principles rather than on the mathematical background. PROFESSOR ROBSON

198-251A. CLASSICAL MECHANICS I. (3 Credits; 3 hours lectures.) Kinematics. Conservation of energy; heat. Conservation of momentum. Lagrange's equations. Angular motion. Oscillators. Special relativity. PROFESSOR ROBSON

198-252A. ELECTRICITY & MAGNETISM. (2 credits; 2 hours lectures.) Electric and magnetic fields; dielectrics and magnetic materials; work and field energy; Maxwell's equations. PROFESSOR STAIRS

198-259D. LABORATORY. (3 Credits.) PROFESSOR ROBSON

198-261B. CLASSICAL MECHANICS II. (2 Credits; 2 hours lectures.) Rigid bodies. Deformations. Generalized coordinates Lagrangian Mechanics. Principle of least action. Hamiltonians. PROFESSOR ROBSON

198-262B. ELECTRICITY & MAGNETISM. (3 Credits; 3 hours lectures.) Magnetism as a relativistic effect; electromagnetic waves; reflection of light waves; dipole radiation; Rayleigh Scattering; motion of charged particles in electric and magnetic fields; introduction to physical and geometrical optics. PROFESSOR STAIRS

U2 COURSES

198-309A. DESCRIPTIVE PHYSICAL OCEANOGRAPHY. (3 Credits; *Prerequisites:* Mathematics 189-E14A and -E15B.) Properties of sea water. Time and space distribution of ocean properties. Water masses and currents. PROFESSOR D'ANGLEJAN

198-314A. ASTROPHYSICS II. (3 Credits; 3 hours lectures; *Prerequisite:* Physics 198-214B.) Topics introduced in 198-214B are treated in more detail and depth. Stellar spectra and classification; Saha ionization formula; introduction to theory of stellar atmospheres; equations of stellar structure and the mass-luminosity relation; nuclear energy generation: the Hertzsprung-Russel diagram. PROFESSOR MORRIS

198-319B. INTRODUCTION TO DYNAMICAL OCEANOGRAPHY. (3 Credits; *Prerequisites:* Physics 198-231A, 309A; Mathematics 189-314A; *Corequisite:* Mathematics 189-315B.) Dynamics of ocean movements. Waves and tides. PROFESSOR INGRAM

198-328A, B. ELECTRONICS. (4 Credits; 3 hours lectures, 3 hours laboratory; *Prerequisite:* Physics 198-232A, B.) Introduction to solid state devices. Amplifiers, feedback, digital circuits. Examples from modern instrumentation. PROFESSOR TRISCHUK

198-331A. CLASSICAL MECHANICS. (3 Credits; 3 hours lectures; *Prerequisite:* Physics 198-231A, B.) Special relativity; Lorentz transformations, 4 vectors, 4 momenta, relativistic kinematics; mechanics, generalized coordinates, Lagrange equations, Hamiltonians, rigid bodies; small oscillations, coupled oscillators, waves. PROFESSOR de TAKACSY

198-334B. TOPICS IN APPLIED PHYSICS. (3 Credits; 3 hours lectures; *Prerequisites:* Physics 198-231A, B; -232A, B.) Waves and resonances in physical systems; superposition, interference and diffraction; examples from mechanics, electronics, geophysics. Information theory: band widths, signal to noise ratio; examples from communications. Plane wave transmission. Matter waves in solid earth, oceans and atmosphere; acoustic waves. PROFESSOR AUSTIN

198-339B. ELECTRONICS. (4 Credits; 3 hours lectures, 3 hours laboratory alternate weeks; *Prerequisite:* Physics 198-232A, B.) Semi-conductor diodes and transistors, transistor amplifiers; circuits with feedback. Pulse circuits, and pulse logic. PROFESSOR TRISCHUK

198-341B. STATISTICAL MECHANICS. (3 Credits; 3 hours lectures; *Prerequisites:* 198-231A, B, 233A.) Ideal gases, density of states, quantum statistics, Bose-Einstein gas, Fermi-Dirac gas, degeneracy, interacting gases, radiation, fluctuations. PROFESSOR DAS GUPTA

198-346D. QUANTUM PHYSICS. (4 Credits; 2 hours lectures; *Prerequisite:* Physics 198-231A,B.) Experimental origins of quantum mechanics. Basic postulates. Uncertainty principle; measurement. The Schroedinger equation, eigensolutions, the harmonic oscillator, angular momentum, matrix mechanics. Identical particles, the exclusion principle, spin, statistics. The hydrogen atom. PROFESSOR PATEL

198-351A. CLASSICAL MECHANICS. (3 Credits; 3 hours lectures.) Lagrangian mechanics; Variational methods and Hamiltonian mechanics; transformation theory and the Hamilton-Jacobi equation. Small vibrations treated first in matrix form as an eigenvalue problem. Group theory and symmetry classification of eigenvectors and eigenvalues.
PROFESSOR STRÖM-OLSEN

198-353B. THERMAL PHYSICS. (3 Credits; 3 hours lectures.) Topics in thermodynamics and statistical mechanics. The laws of thermodynamics; thermodynamical variables and relations. Entropy, free energy, enthalpy, partition functions. Phase changes, Clausius-Clapeyron equation. Applications to physical systems; free particles, ideal gas, Fermi gas, photons, phonons, bosons. PROFESSORS POUNDER AND ADDISON

198-355A. MATHEMATICAL PHYSICS I. (3 Credits; 3 hours; Not offered 1973-74.) Application of mathematical methods in physics. Vectors in 3-space; Fourier analysis; complex analysis; differential equations of mathematical physics; eigenvalue problems.

198-357D. QUANTUM PHYSICS. (6 Credits; 3 hours lectures.) Classical electron theory. Quantum Theory of the electron. One-electron problems. Several-electron problems. Radiation from an atom. PROFESSOR HENZI

198-359B. LABORATORY. (3 Credits; 4 hours.) A laboratory in general physics for Honours students. PROFESSOR STRÖM-OLSEN *et al.*

198-365A. MATHEMATICAL PHYSICS II. (3 Credits; 3 hours; *Prerequisite:* Mathematical Physics I.) Three dimensional waves, boundary conditions, use of special functions, Green's functions, applications to scattering, diffusion and heat conduction; stochastic processes, probability distributions, applications to radioactive decay, diffusion, energy distributions and fluctuations. PROFESSORS WALLACE AND LAM

U3 COURSES

198-431A. APPROXIMATE METHODS IN QUANTUM MECHANICS. (3 Credits; 3 hours lectures; *Prerequisite:* Physics 198-346D.) Approximate solutions of the Schrödinger equation. Applications. The Variational Method. Applications, spectral lines, selection rules and perturbation theory. PROFESSOR ZUCKERMANN

198-432A. THEORY AND APPLICATIONS OF ELECTROMAGNETISM. (3 Credits; 3 hours lectures; *Prerequisite:* Physics 198-232A, B, or E22A.) Laplace's equation in electricity and magnetism. Maxwell's equations and wave propagation. Application to transmission lines and antennae. PROFESSOR WALLACE

198-434B. PHYSICAL AND QUANTUM OPTICS. (3 Credits; 3 hours lectures.) Geometric optics. Polarization. Lasers, diffraction and coherence. Holography. Scattering. Optical properties of materials. PROFESSOR MORRIS

198-437B. NUCLEAR AND PARTICLE PHYSICS. (3 Credits; 3 hours lectures; *Corequisite:* Physics 198-346D.) Simple properties of nuclei and particles. Radioactivity and its applications. Particle interactions with application to astrophysics. Experimental high-energy physics. Accelerators and typical experiments. Quarks. PROFESSOR KITCHING

198-438B. SOLID STATE PHYSICS. (3 Credits; 3 hours lectures; *Corequisite:* Physics 198-346D.) Structure of solids. Thermal vibrations in crystals. Electrons in metals, semi-conductors and insulators. Selected topics from magnetism, semi-conducting devices, superconductivity, etc.
PROFESSOR WALLACE

198-439A. LABORATORY. (3 Credits; 4 hours laboratory; *Prerequisite:* Physics 198-328A, B.) Prescribed labortory work. PROFESSOR STRÖM-OLSEN *et al.*

198-449B. LABORATORY. (3 Credits; 4 hours laboratory; *Prerequisite:* Physics 198-328A, B.) Supervised project work. PROFESSOR STRÖM-OLSEN *et al.*

198-451A. QUANTUM THEORY. (3 Credits; 3 hours lectures.) General formulation, scattering theory, WKBJ approximation, time-dependent perturbation theory and applications, angular momentum, relativistic wave equations. PROFESSOR CONTOGOURIS

198-452D. ELECTROMAGNETIC THEORY. (6 Credits; 3 hours lectures.) Electrostatics, boundary value problems, magnetostatics, Maxwell's equations. Wave equations, waveguides, radiation, multipoles and vector spherical harmonics. PROFESSOR CRAWFORD

198-454B. OPTICS. (3 Credits; 3 hours lectures.) Geometrical optics, lenses, electromagnetism and physical optics, diffraction theory, image formation, holography. PROFESSOR MORRIS

198-457A. NUCLEAR PHYSICS. (3 Credits; 3 hours lectures.) General nuclear properties, nucleon-nucleon interaction and scattering theory, radioactivity, nuclear models, nuclear reactions. PROFESSOR KITCHING

198-458A. SOLID STATE PHYSICS. (3 Credits; 3 hours lectures.) Properties of crystals, lattice vibrations and thermal properties of insulators, free electron model and band structure, semiconductors, metals, optical properties. PROFESSOR HEDGCOCK

198-459D. LABORATORY. (6 Credits; 4 hours laboratory.) This laboratory will include experiments associated with electromagnetic theory, as well as the optional courses in U3.
PROFESSOR STRÖM-OLSEN *et al.*

198-465D. MATHEMATICAL PHYSICS FOR CHEMISTS. (4 Credits; 2 hours lectures; *Prerequisites:* Mathematics 189-314A and 315B.) Advanced dynamics, including theory of vibrations. Continuous systems. Eigenfunctions and eigenvalues. PROFESSOR DAS GUPTA

198-467B. PARTICLE PHYSICS. (3 Credits; 3 hours lectures.) Basic interactions and symmetries, kinematics, scattering theory, phase space, symmetry and statistics, boson and baryon spectra, experimental techniques. PROFESSOR CONTOGOURIS

PHYSIOLOGY (552)

McIntyre Medical Building, Room 1023, Telephone 392-3079.

Physiology has its roots in many of the basic sciences including biology, chemistry, mathematics, and physics. As one of the central biomedical sciences, physiology overlaps with other biomedical sciences such as anatomy, biochemistry, pathology and pharmacology, and with psychology and biomedical engineering, and is one of the prime contributors of basic scientific knowledge to the clinical medical sciences.

The Department of Physiology at McGill is engaged in studies ranging from the cell and molecular to the population level in a variety of invertebrates and vertebrates, including man. A wide range of interest and expertise in physiology is represented by the staff of the Department, including cardiovascular, respiratory, renal, exercise, neurophysiology, immunology and biophysics. A number of faculty members in the Department have formal or informal liaisons with basic science (mathematics, physics, electrical engineering, chemistry) and clinical departments (medicine, surgery, paediatrics, neurology, psychiatry, anaesthesia), reflecting and reinforcing the close ties which physiology maintains with other disciplines.

The options in the major program in physiology differ in their degree of orientation to biology, biochemistry, chemistry, mathematics and physics but they all contain a common, in depth, core of material covering cardiovascular, respiratory, renal, neurophysiology and immunology that is elaborated in a three-tiered system of courses from U1 to U3.

Graduates at the B.Sc. level have found rewarding career opportunities in secondary school science teaching, government service, and laboratory technical assistance, e.g. in pharmaceutical houses, hospitals, and institutions of higher learning. Further, physiology is an excellent background for medicine or dentistry or for other post-graduate work, e.g. in physiology, experimental medicine, pharmacology and physiological psychology.

Student Counsellors for Physiology Programs

200 and 300 level courses in Physiology: Professors C. Polosa and A. Wechsler, and Dr. P. Weldon.

Major programs and 400 level courses in Physiology: Professors R. I. Birks, D. R. Firth, M. M. Frojmovic and M. C. Mackey.

Graduate courses: Professors M. W. Cohen and W. S. Lapp.

Major Program

The following options are available:

MAJOR PHYSIOLOGY (58 Credits).

U1: Physiology 552-211D; Biology 177-201D, -205D, -206D; Mathematics 189-231A, B; Chemistry 180-222A, -204A.

U2: Physiology 552-311D; Biology 177-301A, B, -303A or -305A; Biology 177-309B or 177-373A or Mathematics 189-232A, B.

U3: 12 Credits from Physiology 400 and/or 600 series, with at least 6 Credits from the 400 series.

MAJOR PHYSIOLOGY: BIOCHEMISTRY ORIENTATION (64 Credits)

U1 and U2: as Optional Orientation but

U1/U2 = Chemistry 180-214B; Biochemistry 507-352D

U3: = Physiology 552-411A and 3 Credits from Physiology 400/600 series, 3 Credits from Biochemistry 400 series

Recommended: Chemistry 180-207A or 180-227A, 180-247A or 180-267A, -302A and -362B; Biology 177-302A, B.

MAJOR PHYSIOLOGY: CHEMISTRY ORIENTATION (65 Credits)

U1: 30 Credits: Physiology 552-211D; Chemistry 180-204A, -214B, -222A, -207A, -217A, B, -227B, -237B, -201A, B; Mathematics 189-222A, B; Physics 198-232A, B.

U2: 26 Credits: Physiology 552-311D; Biology 177-201D; Chemistry 180-253B, -273A, -352A, B, -353A; Mathematics 189-315A, B; Physics 198-339B.

U3: 9 Credits: Physiology 552-411A and 3 Credits from Physiology 400/600 courses; Biology 301A.

Recommended: Biochemistry 400 series; Physiology 552-417A, -418B.

Note that the U1/U2 sequence may be identical for a student registered in our program or a Chemistry Major program. The option for Chemistry Major or Physiology Major can be decided at the end of U2, subject to approval.

Joint Major

MAJOR IN PHYSIOLOGY AND PHYSICS (71-74 Credits)

U1: 26 Credits: Physiology 552-211D; Mathematics 189-222A, B, -223A, -315A, B; Physics 198-232A, B, -233A, -235B.

U2: 26 or 29 Credits: Physiology 552-311D, -413A and -415B or -411A; Mathematics 189-319B; Physics 198-328A, B or -339B, -231A; and 2 of Mathematics 189-317A, Physics 198-334B, -341B.

U3: 19 Credits: Physiology 552-417A, -418B; Physics 198-346D; 3 Credits in a Physiology course and 6 Credits in Physics to be selected in consultation with Physiology and Physics.

Course Descriptions

552-201A. PHYSIOLOGY OF MAN: ORGAN AND TISSUE PHYSIOLOGY. (3 Credits; 2 hours lecture, with a conference and/or demonstration, and/or laboratory on alternate weeks; *Prerequisites:* College courses in Biology or Anatomy, and in Chemistry and Physics; with Organic Chemistry (212 or equivalent) as a pre- or corequisite.) Physiology of blood and body fluids, nerve and muscle, heart and vessels, lungs and gas transport. (For students in the School of Physical and Occupational Therapy, the School of Nursing, and the Faculty of Education, and for students in the Faculty of Science who are not in the Biology Core Curriculum described on page 179.) PROFESSOR POLOSA AND STAFF

552-202B. PHYSIOLOGY OF MAN: METABOLIC AND REGULATORY PHYSIOLOGY. (3 Credits; 2 hours lectures, with a conference and/or demonstration and/or laboratory on alternate weeks; *Prerequisites:* College courses in Biology or Anatomy, Chemistry and Physics, with Organic Chemistry as a pre- or corequisite; or equivalent courses.) Physiology of excretion, digestion, organic metabolism and energy balance, endocrine control systems, reproduction, central nervous system and special senses. (For students in the School of Physical and Occu-

pational Therapy, the School for Graduate Nurses, and the Faculty of Education, and for students in the Faculty of Science who are not in the Biology Core Curriculum.)
PROFESSOR POLOSA AND STAFF

PHYSIOLOGY 201A AND 202B are companion courses and it is recommended that they be taken in that sequence, but they may be taken in separate years or in the reverse sequence.

552-211D. MAMMALIAN PHYSIOLOGY WITH EMPHASIS ON THE PHYSIOLOGY OF MAN. (6 Credits; First term, 3 hours lectures; Second term, 2 hours lectures; with 3 hours laboratory every second week in both terms; *Prerequisites:* As for Physiology 201A and 202B; Biology 201D if not already taken must be taken concurrently.) For students in the Faculty of Science, and for other students with permission of the Department.
PROFESSOR MacINTOSH, DR. WELDON AND STAFF

552-311D. INTERMEDIATE PHYSIOLOGY. (6 Credits; 3 hours of lectures, alternating with 2 hours of lectures and 3 hours laboratory, per week; *Prerequisite:* Physiology 211D.) The Physiology of: 1) the Nervous System, 2) the Immune System, 3) the Respiratory System, 4) the Cardiovascular System, and 5) the Renal System. PROFESSORS COHEN AND LAPP

552-312D. SELECTED TOPICS IN INTERMEDIATE PHYSIOLOGY. (3 Credits, with timetable to include one half the hours of Physiology 311D; *Prerequisite:* Physiology 211D.) Any combination of three of the topics listed in 311D except the Nervous System; or a combination of the Nervous System and one other topic. PROFESSORS COHEN AND LAPP

552-411A. MOLECULAR PHYSIOLOGY. (3 Credits; 3 hours per week and/or modular instruction; *Prerequisites:* Physiology 211D, 311D (or concurrently): Chemistry 222, 204, 214 and/or permission of the instructor.) Principles of molecular interactions in and at membranes and cells, including a discussion of experimental techniques; and their application to structure-function relationships in cell adhesion, blood clotting and thrombosis, immunophysiology and other selected areas. PROFESSOR FROJMOVIC

552-413A. PHYSIOLOGICAL TRANSPORT SYSTEMS. (3 Credits; *Prerequisites:* Physiology 211D, Physiology 311D (or concurrent enrolment); Mathematics 231A, B, Mathematics 232B or Mathematics 315A, B; or Biology 309B; and/or permission of the instructor.) This course will examine the general principles governing micro and macroscopic mass transport across cell membranes and tissue barriers. Topics to be covered are: the passive and active transmembrane movement of charged and neutral substances in the central nervous system, kidney, and G-I tract; the relationship of macroscopic tissue electrical properties to microscopic transmembrane ion movement in the CNS and kidney; gas exchange in the lungs; and fluid dynamics in the respiratory and cardiovascular system. PROFESSOR MACKEY

552-415B. DYNAMIC ANALYSIS AND CONTROL IN PHYSIOLOGICAL SYSTEMS. (3 Credits; *Prerequisite:* Physiology 211D and Physiology 311D (or concurrent enrolment); Mathematics 231A, B, Mathematics 232B or Mathematics 315A, B, or Biology 309B or Biology 373A; and/or permission of the instructor.) The use of dynamic and compartmental analyses, control system and information theory, in the understanding of the physiological processes of muscular movement, respiration, circulation, blood glucose regulation, pancreatic secretion, information processing by sensory systems. PROFESSORS FIRTH AND OUTERBRIDGE

552-417A, 418B. EXPERIMENTAL PHYSIOLOGY. (3 Credits.) Individual project work under Faculty supervision. Either A and/or B are open to selected students in Major Physiology programs.
STAFF AND GRADUATE STUDENTS

PSYCHOLOGY (204)

Stewart Biology Building, Room W/1, Telephone 392-4708

Psychology is the scientific study of man's mind and behaviour. It is both a social and biological science. As a social science, psychology studies man in his interactions with other members of his own species. As a biological science, it regards man as the product of evolution and so studies him in biological perspective, comparing and contrasting his behaviour with that of other species.

The data of psychology are collected within the psychological laboratory by the use of experimental methods in the study of behaviour, and outside the laboratory by systematic observation of the behaviour of man and lower animals. The combination of experimentation and observation results in a knowledge of man's behaviour as he perceives his world, learns, directs his behaviour towards certain goals, and reacts to stress, frustration, and other men. Experimentation, laboratory techniques, observational procedures, measurement, and statistical methods are important tools of the psychologist in the study of behaviour.

Psychology has many interdisciplinary aspects. The study of many psychological problems involves knowledge drawn from other disciplines such as biology, physiology, linguistics, sociology, philosophy, and mathematics. For this reason a student with varied interests can frequently find a place for these interests in psychology.

Psychology is a young science so that explanations of the processes underlying observed phenomena are often theoretical and speculative. The major objectives of psychological study are to reduce the discrepancy between theory and fact and to provide better answers about why man thinks and behaves as he does.

Although a number of undergraduate courses in psychology have applied implications, applied training is in no way the purpose of the undergraduate curriculum. The purpose of that curriculum is to introduce the student to an understanding of the basic core of psychological knowledge, theory, and method, regardless of questions of practical application.

The B.A. or B.Sc. with a Major or Honours degree in psychology is not a professional qualification. It does not qualify the individual to carry on professional work in psychology. In the Province of Quebec the minimum requirement for membership in the Corporation of Psychologists of the Province of Quebec, the professional association governing the work of psychologists in the Province, is an M.A. or M.Sc. degree, or other equivalent degree. Undergraduate courses in psychology may prove of considerable value to students planning careers in professional fields other than psychology, such as medicine, education, social work, communication disorders, or business and industry.

Students who are interested in psychology as a career must pursue graduate studies. Persons who hold graduate degrees in psychology, usually the Ph.D., may find employment in universities, research institutes, hospitals, community agencies, government departments, large corporations, or may act as self employed consultants. At the graduate level, psychology has many specialized branches including social psychology, physiological psychology, experiemental psychology, clinical psychology, child psychology, industrial psychology, community psychology, educational psychology, and others. Also at McGill at the undergraduate level, as indicated below, a student may pursue an undergraduate Major program in a wide variety of areas of specialization.

Although requirements for admission to graduate studies in psychology vary from one university to another, both the Honours and Major degrees in psychology may qualify the student for admission to many graduate schools, provided of course that sufficiently high marks are obtained.

The essential difference between the Honours and the Major program is that higher standards are required of Honours students. Honours students also have an opportunity to work in small groups closely with staff members.

Program Information

The Psychology Department offers 14 different options in its 54 credit programs. Except where otherwise stated, each of these programs may be taken as Major, Honours or Faculty programs. The differences between these three categories of programs are outlined below. The descriptions of the 10 options available in the B.Sc. program follow. See page 143 for descriptions of the options available only in the B.A. program.

PREREQUISITES

It is expected that most students who major in psychology will have taken introductory psychology and statistics at the collegial level. In the first year all major students must take general experimental psychology (204-210D) and psychological statistics (204-305A or B). Those students who have not taken a college level statistics course must also take psychology 204-204A or B in addition to the other courses in their program.

A student who has not taken an introductory psychology course at the collegial level may major in psychology by taking Psychology 204-200D in their U1 year and also the courses in psychological statistics 204-204A or B and 204-305A or B. Such students should take general experimental psychology 204-210D in their U2 year concurrently with other U2 courses.

MAJOR PROGRAM

The following options are available in the Major program in Psychology:

1. General Psychology
2. General Experimental Psychology
3. Basic Human Experimental Psychology
4. General Human Experimental Psychology
5. Cognition and Thinking
6. Child Psychology
7. Personality and Abnormal Psychology
8. Human Communications Disorders
9. Psychobiology
10. Quantitative Psychology

Call the main office of the Psychology Department (392-4708) or the Chief Adviser, Ms. Olga Favreau (392-4694) to be assigned to an adviser. In the First year of any of the above programs all Major students take Psychology 204-210D and 204-305B. Detailed descriptions of the programs will be found starting on page 225. Students majoring in psychology must obtain a minimum grade of C in all 54 credits required by their program. A grade lower than C may be made up by taking another equivalent course (if there is one), by successfully repeating the course, or by successfully writing a supplemental examination (if there is one).

HONOURS PROGRAM

Honours in psychology prepares students for graduate study, and so emphasizes practice in the research techniques which are used in graduate school and professionally later on. Honours students take Psychology 204-380D in the first year of their program (normally U2) and they take Psychology 204-480D and 204-481D in the second year (normally U3). These courses have limited enrolments, and admission to Honours is selective. There is normally room for 30-35 new Honours students each year. Students with a cumulative grade point average of 2.8 or better, are eligible to apply.

Students are normally accepted into Honours at the beginning of U2, and the two-year sequence of Honours courses continues through U3. Students who have had introductory psychology and statistics at the institution preceding McGill, *who have an exceptional academic record,* and who apply for admission to Honours in U1 will be considered for acceptance. Failure to be admitted to Honours in U1 will not prejudice application for admission in U2.

Applications can be obtained from the general office of the Department of Psychology, Room W8/1, Stewart Building. The applications must be completed and returned to the general office by 1 September of the year for which admission to Honours is sought. Candidates will be advised of the Department's decision by letter shortly after September 1. For information (other than application forms) about the Honours program, phone Professor Don Donderi, Honours Committee Chairman, at 392-4693.

FACULTY PROGRAMS

A Faculty Program in Psychology is a sequence of courses which represents a lesser degree of specialization than a Major or an Honours program. A Faculty Program may be made up of any of the Major programs with the substitution of 6 credits from U2 Psychology courses for Psychology 204-211D and 204-305A or B. The joint program in psychology and mathematics is also a Faculty Program. For further details see program information at beginning of the Science section (see page 169).

PROGRAM DESCRIPTIONS

The courses in the programs are ordered sequentially so that it will normally take three years to complete a program. The Major and Faculty Programs all include 18 credits in each of U1, U2, and U3. Students may, with the consent of their Academic Adviser, substitute up to 6 credits in a program. Any further changes must be approved by the Associate Dean of the Faculty.

When selecting optional program courses from other departments, it is the student's responsibility to see that she or he has taken the appropriate prerequisites and/or obtained permission of the department where necessary.

None of the B.A. or B.Sc. programs provides professional training. The credits to intended to give the student a general academic background in the interest D, 310D, cated by their titles. Those who are interested in practising psychology profe must obtain graduate degrees at least at the Master's level, and should pr continue on to the Ph.D. The Honours programs are most specifically designed t students who intend to go to graduate school. However, it is important to remer that admission to graduate studies is highly competitive, and that no degree guarant om entry to advanced study. Students with a Major in psychology may also, if they h A; chosen their courses appropriately and obtained high enough standing, be admitte to graduate studies, although they may sometimes be required to complete a qualifying year. Students in Faculty Programs who decide to go into graduate study in psychology will most probably have to complete a qualifying year first. Further information about advanced study in Psychology may be obtained from the American Psychological Association's Handbook on the topic. It is usually on sale in the University Bookstore.

Graduate Study

Students planning to work for a graduate degree in Psychology are advised to include Psychology 204-300A, -301B, -302A, -303B, -400D and -450D among their courses The adviser to Major students will, whenever possible, assist students in planning their courses to coincide with their professional aims. Most graduate schools require not only a record of high achievement, but also adequate performance on some entrance examinations such as the Graduate Record Examination and the Miller Analogies Test, as well as letters of recommendation.

Faculty Programs

For details, see Faculty Programs, page 169.

Major Programs

GENERAL PSYCHOLOGY OPTION

This option is intended to give maximum flexibility to the students in designing their own programs. In this 54 credit option at least 36 credits must be in psychology courses. These latter must include Psychology 204-210D and 204-305A or B as well as 12 credits in U3 Psychology courses. If fewer than 54 credits in psychology are taken, then the difference between that number and 54 must be made up by selecting certain courses in other departments from the following list (students are warned that the list may not be up to date in September 1973; the relevant department should be consulted before choosing).

Anatomy 504-421B; Anthropology 151-E21A, E22B, 205A, 206B, 228A, 303B, 310B, 312B, 314A, 316A, 321B, 404B, 428B; Biochemistry 507-455B; Biology 177-E10D, E27A, 201D, 205D, 303A, 305A, 325A, 326B, 349D, 352D, 370B, 372B, 385A, 386D, 391A, 392B, 394B, 471B, 488B, 493B; Computer Science 308-220A or B; Geography 183-214A, 215B, 217B, 300B; Linguistics 104-200A or B, 201D, 230A, 241B, 321B; Mathematics 189-217A, 218B, 223A, 245A, B, 314A, B, 317A, 318A, 323A, 324B, 327B, 328B, 417A, 423A, 424B; Philosophy 107-210A, 211B, 313D, 321A, 410D, 417D, 420D; Physiology 522-201A, 202B, 211D; Sociology 166-E21A or E22A or E23A and E42B or E44B or E45B, 222B, 223A, 227A, 247B, 309A, 404B, 407A, 439B.

GENERAL EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D, 305A, B; plus 9 Credits from U2 Psychology courses which are open to U1 students.

U2 Courses: Psychology 204-300A, 301B; plus 12 Credits to be selected from Psychology 204-302A, 303B, 304D, 308D, 309B, 310D, 330A, 331B, 335A, 336B.

U3 Courses: Psychology 204-400D plus 12 Credits to be selected from the list of U2 options above.

BASIC HUMAN EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B; plus 6 Credits from U2 Psychology courses which are open to U1 students.

MAJOR *urses:* Psychology 204-300A, 301B, 302A, 303B; plus 6 Credits to be selected
The follo ychology 204-307D, 310, 335A.
ourses: Psychology 204-400D, 401D; plus 6 credits to be selected from: Psy-
1/2 204-403B, 404B, 425A, 430B.

NERAL HUMAN EXPERIMENTAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B; plus 6 Credits from U2 Psy-
ology courses that are open to U1 students.

U2 Courses: Psychology 204-300A, 301B, 302A, 303B; plus 6 Credits chosen from among other U2 psychology courses.

U3 Courses: Psychology 204-400D; plus 6 or 9 Credits to be selected from: Psychology 204-401D, 403B, 404B, 415D, 425A, 430B. The balance of 18 Credits to be selected from among U2 and U3 courses.

COGNITION AND THINKING OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B; plus 6 Credits to be selected from: Mathematics 189-245A, B; Computer Science 308-200A, B, 210A, B; Philosophy 107-210A; Linguistics 104-200A, B.

U2 Courses: Psychology 204-302A, 303B, 340A; plus 9 Credits to be selected from: Psychology 204-335A, 336B, 304D, 301B, 310D; Anthropology 151-E22B; Mathematics 189-328B. Up to 6 credits from the optional U1 courses listed in this program if not already taken.

U3 Courses: Psychology 204-410D; plus 12 credits from: Psychology 204-400D, 403B, 404B, 410D, 425A, 431B, 451D, 452D, 456D, 450D; Linguistics 104-321B, 480A. Up to 6 credits from the optional courses of U1 or U2 listed in this program if not already taken.

CHILD PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B; plus 6 Credits to be selected from Sociology, Geography, Anthropology or Biology.

U2 Courses: Psychology 204-304D; plus 9 Credits to be selected from: Psychology 204-300A, 301B, 302A, 303B, 309B, 310D, 330A, 331B, 332A, 337A, 338B, 340A, 341B; plus 3 credits to be selected from courses in Biology, Geography, Anthropology or Sociology.

U3 Courses: Psychology 204-410D; plus 9 Credits to be selected from: Psychology 204-400D, 401D, 404B, 406B, 408A, 411D, 412A, 415D, 425A, 430B, 451D, 456D, 458D; plus 3 credits to be selected from courses in Anthropology, Geography, Biology or Sociology.

PERSONALITY AND ABNORMAL PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; 305A, B; plus 9 Credits to be selected from: Biology 177-205D; Sociology 166-E21A or E22A or E23A and 166-E42B or E44B or E45B, 166-217A; Geography 183-214A, 215B; Anthropology 151-314A, 206B, 228A, 310B, 312B; Psychology 204-211D.

U2 Courses: Psychology 204-337A, 338B; plus 12 Credits to be selected from: Psychology 204-300A, 301B, 302A, 303B, 340D, 308D, 309B, 332A, 404B; Biology 177-370B; Physiology 552-211D, 201A; Philosophy 107-301A, 302B; Sociology 166-309A, 227A, 228A, 247A.

U3 Courses: Psychology 204-491D, 408A; plus 9 Credits to be selected from: Psychology 204-310D, 400D, 405B, 412A, 433B, 458B, 456D.

HUMAN COMMUNICATION DISORDERS OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B, 214D.

U2 Courses: Linguistics 104-201D; Psychology 204-300A, 337A; plus 6 Credits to be selected from: Psychology 204-303B, 340A, 308D, 301B, 302A, 303B, 304D, 310D, 404B.

U3 Courses: Psychology 204-408A; Linguistics 104-350A, 351B; plus 9 Credits to be selected from: Psychology 204-303B, 340A, 308D, 301B, 302A, 303B, 304D, 310D, 404B.

PSYCHOBIOLOGY OPTION

U1 Courses: Psychology 204-210D, 211D, 305A, B; Biology 177-205D.

U2 Courses: Psychology 204-300A; 301B, 308D; plus 6 Credits to be selected from Psychology 204-302A, 303B, 309B; Biology 177-201D, 305A, 318B, 386B, 391A; Physiology 552-211D.

U3 Courses: Psychology 204-420D; plus 12 Credits selected from: Psychology 204-404B, 430B, 454D; Biology 177-302B, 487B, 488B, 493D; Pharmacology 549-461D.

QUANTITATIVE PSYCHOLOGY OPTION

U1 Courses: Psychology 204-210D; Mathematics 189-222A, B, 245A, B; Computing Science 308-200A, B or 220A, B.

U2 Courses: Psychology 204-302A, 303B; Mathematics 189-323A, 324B; plus 3 Credits to be selected from: Mathematics 189-314A, B, 317A, 327B, 328B; plus 6 Credits selected from Psychology non-statistics courses.

U3 Courses: Psychology 204-335A, 336B; Mathematics 189-423A, 424B; plus 3 Credits selected from the U2 mathematics optional course list or from: Mathematics 189-417A, 447B; plus 6 credits selected from Psychology non-statistics courses.

Course Descriptions

NOTE: *Prerequisites:* Psychology 204-200D or an equivalent introductory course is a prerequisite for all psychology courses with the exception of 204-204A and B, and 204-305A and B. All 200 and 300 courses are open to students other than Major and Honours students in psychology provided the prerequisites are met and unless otherwise specified.

For more detailed information about courses in psychology see *Handbook of Courses and Programs in Psychology* which is on sale at the Bookstore.

204-200D. INTRODUCTION TO PSYCHOLOGY. (6 Credits; 2 lectures, 1 conference.) *Text:* Hebb: *A Textbook of Psychology,* 3rd ed.
PROFESSORS MELZACK AND STERN

204-203A. EMOTION. (3 Credits; 2 lectures, 1 conference.) A review of the available knowledge bearing on the explanation of the behaviour and experience that characterize emotional states, such as anger, elation, anxiety and depression. Implications of current psychophysiological research on emotion for the problems of health, the arts, and social life will be explored. **NOTE:** This course has no prerequisites; it is designed for students in areas other than psychology. Students in psychology Honours and Major programs may take this course as an elective but may not use credit in this course towards meeting requirements of prescribed programs.
PROFESSOR ———

204-204A, B. INTRODUCTION TO PSYCHOLOGICAL STATISTICS. (3 Credits; 2 lectures, 1 conference. Required of all Majors in Psychology and students intending to enter Honours in Psychology.) The statistical analysis of psychological data; frequency distributions; graphic representation; measures of central tendency and variability; elementary probability theory; the normal probability curve; simple correlation methods; elementary sampling theory and tests of significance. *Text:* Ferguson: *Statistical Analysis in Psychology and Education,* 3rd ed. **NOTE:** This course is a prerequisite for Psychology 204-305A, B, 307D, 406B, 453D.
PROFESSOR FERGUSON

204-206B. MAN AND COMPUTER. (3 Credits; 2 lectures, 1 conference.) This course considers the basic structures of computers, computer-based psychological theories, the problem of artificial intelligence and the impact of computers on society and man's concept of himself. **NOTE:** This course has no prerequisites; it is designed for students in areas other than psychology. Students in psychology Honours and Major programs may take this course as an elective but may not use credit in this course towards meeting requirements of prescribed programs.
PROFESSOR BREGMAN

204-210D. GENERAL EXPERIMENTAL PSYCHOLOGY. (6 Credits; required of all Major students. Open to other students with permission of the course coordinator. This course is organized around self-instructional learning modules and one optional weekly lecture.) A comprehensive review of the problems, methods, and findings in various areas of psychology.
PROFESSOR CAMPBELL

204-211D. LABORATORY METHODS IN PSYCHOLOGY. (3 Credits; 1 lecture, 1 conference plus independent laboratory work. This course is recommended for students planning a career in psychology, and should be taken concurrently with Psychology 204-210D.) Training in laboratory methods is given by requiring students to prepare and present demonstrations of psychological experiments. *Text:* Johnson & Solso: *An Introduction to Experimental Design in Psychology: A Case Approach,* 1971. PROFESSOR DONDERI

204-214D. INTRODUCTION TO HUMAN COMMUNICATION DISORDERS. (6 Credits; 2 lectures, 1 conference.) An introductory survey of speech and language pathology, audiology, and aural rehabilitation, including diagnostic and rehabilitative procedures, theoretical bases, and current research findings. *Text:* Davis & Silverman: *Hearing and Deafness,* 3rd ed. PROFESSOR BARTHOLOMEUS

204-300A. MOTIVATION I. (3 Credits; 2 lectures, 1 conference.) Motivation is considered in terms of the internal and external factors which act to direct behaviour. Basic principles of motivation are developed, based on the behaviour of both animals and humans. Emphasis is on the evolutionary development of behaviour, and therefore the material considered is mainly from animals. *Texts:* Cofer: *Motivation and Emotion;* Bindra and Stewart: (Eds.) *Motivation.* **NOTE:** This course is prerequisite for Psychology 204-309B. PROFESSOR WHITE

204-301B. LEARNING. (3 Credits; 3 lectures.) The phenomena of learning, emphasizing human learning, from both the theoretical and practical points of view. *Texts:* Burger & Seaborne: *The Psychology of Learning;* Smith & Rohrman: *Human Learning.* PROFESSOR DONDERI

204-302A. PERCEPTION. (3 Credits; 2 lectures, 1 conference.) The organization of sensory input into a representation of the environment. Topics such as perception and the moving observer, pattern recognition, computers and perception, speech perception, sensory-motor rearrangement. PROFESSOR MARLEY

204-303B. THINKING. (3 Credits; 2 lectures, 1 conference.) An introduction to the study of higher mental processes. Topics such as: development of thought and language, problem solving, concept formation, imagery, artificial intelligence. PROFESSOR MARLEY

204-304D. CHILD PSYCHOLOGY. (6 Credits; 2 lectures, 1 conference.) A study of current theory and knowledge about psychological processes in children, with particular attention to the development of intelligence, language and social behaviour. **NOTE:** This course is a prerequisite for 204-410D and 412A. PROFESSOR RABINOVITCH

204-305A, B. PSYCHOLOGICAL STATISTICS. (3 Credits; 2 lectures, 1 conference. *Prerequisite:* Psychology 204-204A or B.) An introduction to the design and analysis of experiments, including analysis of variance, trend analysis, nonparametric statistics, and multiple regression. *Text:* Ferguson: *Statistical Analysis in Psychology and Education,* 3rd ed. **NOTE:** This course is prerequisite for Psychology 204-453D, 456D. PROFESSOR CORBALLIS

204-307D. MULTIVARIATE ANALYSIS OF PSYCHOLOGICAL DATA. (3 Credits; *Prerequisites:* Psychology 204-204A or B and permission of instructor; Not given in 1973-74.) Common multivariate statistical methods such as multiple regression and factor analysis, and an introduction to the use of the computer for data analysing employing these methods.

204-308D. PHYSIOLOGICAL PSYCHOLOGY. (6 Credits; 2 lectures, 1 conference.) The neural basis of motor and sensory functions, motivation, attention, and learning. *Text:* Milner: *Physiological Psychology.* PROFESSOR MILNER

204-309B. MOTIVATION II. (3 Credits; *Prerequisite:* Psychology 204-300A; 2 lectures, 1 conference.) The development of motivation in individual organisms is studied, with emphasis on the relationship between emotional and motivated behaviour. Human data are considered, including material from the personality theory and abnormal behaviour literature. Reading consists of assignments made during the course. PROFESSOR WHITE

204-310D. NATURE AND MEASUREMENT OF HUMAN ABILITIES. (6 Credits; 2 lectures, 1 conference.) An introduction to the description and theory of human ability, its correlates and the role of learning and heredity in its formation; factors producing changes in ability. Test construction and methods of measurement. *Text:* Tyler: *The Psychology of Human Differences.* PROFESSOR CORSON

204-311A. COMPARATIVE PSYCHOLOGY. (3 Credits; Not given in 1973-74.) The organization and development of ethologically significant behaviour; food gathering, hunting, aggression, territoriality, sexual and maternal responses are discussed in an evolutionary context with a view to the understanding of human behaviour.

204-312B. THE EVOLUTIONARY BASES OF HUMAN BEHAVIOUR. (3 Credits; Not given in 1973-74.) A consideration of man's behaviour from an evolutionary viewpoint, including discussions of archaeological findings relating to man's early development, evidence of biological evolution in post-cultural man, and field studies of contemporary sub-human primates.

204-330A. INTRODUCTION TO SOCIAL PSYCHOLOGY. (3 Credits; 2 lectures, 1 conference.) Introduction to basic concepts and theories in the area of social cognition, attitudes, and

interpersonal processes. **NOTE:** This course is prerequisite for 204-331B.
PROFESSOR TAYLOR

204-331B. SELECTED TOPICS IN SOCIAL PSYCHOLOGY. (3 Credits; *Prerequisite:* Psychology 204-330A. No lectures will be given.) An intensive study of selected research areas in social psychology. Topics will be selected each year that reflect the interests of the instructor and students. The course will emphasize independent study and student-led seminars in which students present and discuss papers which they have prepared. PROFESSOR TAYLOR

204-332A. INTRODUCTION TO PERSONALITY. (3 Credits; 2 lectures, 1 conference.) A broad survey of theories of personality. The student is introduced to most of the major theoretical positions. **NOTE:** This course is prerequisite for Psychology 204-433B.
PROFESSOR ————

204-335A. QUANTITATIVE PSYCHOLOGY I. (3 Credits; 2 lectures, 1 conference.) An introduction to mathematical theories in psychology, and to related experiments. The content of the course will be partially determined by the interests of the class. Topics such as: contemporary psychophysics, individual and group decision making, information processing and automaton-theoretic approaches to perception and cognition. PROFESSOR MARLEY

204-336B. QUANTITATIVE PSYCHOLOGY II. (3 Credits, 3 lectures.) Principles of scientific measurement, various specialized least squares models, multidimensional scaling, game theory, and information theory. *Text:* Coombs, Dawes and Tversky: *Mathematical Psychology.*
PROFESSOR ————

204-337A. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (3 Credits; 2 lectures, 1 conference.) A survey of the genetic, physiological and environmental origins of intellectual and emotional disorders. **NOTE:** This course is prerequisite for 204-338B. PROFESSOR PIHL

204-338B. BEHAVIOUR PROBLEMS. (3 Credits; *Prerequisite:* Psychology 204-337A; 2 lectures and 1 conference.) An introduction to psychotic behaviour problems, character disorders, experimental methods of pathology and behaviour modification. **NOTE:** This course is prerequisite for Psychology 204-491D. PROFESSOR PIHL

204-340A. THE PSYCHOLOGY OF LANGUAGE. (3 Credits; *Prerequisite:* An introductory course in Psychology or Linguistics; 2 lectures, 1 conference.) The nature of the psychological processes involved in speech and language are considered in relation to maturational and environmental factors. *Text:* Slobin: *Psycholinguistics.* PROFESSOR TUCKER

204-341B. SELECTED TOPICS IN PSYCHOLINGUISTICS. (3 Credits; 2 lectures, 1 conference.) The course will discuss the psychological aspects of bilingualism in individual, school and society. PROFESSOR MACNAMARA

204-380D. SEMINAR ON EXPERIMENTAL PROBLEMS. (6 Credits; 3 hour seminar. For Honours students only.) Honours students present current literature reports in individual program areas, for discussion. Then each student starts an original investigation in collaboration with an individual staff member. STAFF

204-400D. CONTEMPORARY PSYCHOLOGICAL THEORY. (6 Credits; 2 lectures, 1 conference.) Recent progress towards the integration of psychological knowledge into a coherent framework is discussed with reference to theoretical ideas and experimental evidence in the areas of learning, motivation, perception, thinking, personality, and mental abnormality.
PROFESSOR ————

204-401D. COGNITIVE PROCESSES. (6 Credits; 2 lectures, 1 conference.) *Prerequisites:* Psychology 204-301B, 302A, 303B.) The study of the acquisition, storage, transformation and use of knowledge. Theories based on associationist, stimulus-response, Gestalt, computer and logical models of thought are evaluated. Application to processes of concept formation, problem solving, language and memory. PROFESSOR BREGMAN

204-403B. MODERN PSYCHOLOGY IN HISTORICAL PERSPECTIVE. (3 Credits; 2 lectures, 1 conference.) A survey of the social and idealogical influences on psychology from its philosophical beginnings through the period of the schools to its modern situation.
PROFESSOR ————

204-404B. ATTENTION AND MEMORY. (3 Credits; 2 lectures, 1 conference. This course is restricted to U3 students.) A critical examination of recent research on how man selects, codes, stores and retrieves information. Phenomena of visual and auditory storage, coding and rehearsal in memory, imagery, the nature of forgetting and mechanisms of retrieval are discussed in relation to information processing models. PROFESSOR CORBALLIS

204-405B. AGING. (3 Credits; *Prerequisite:* Psychology 204-210D and 204-304D or permission of instructor; 2 lectures, 1 conference.) A review and discussion of the available knowledge on how the process of aging affects the individual's intellectual and personality functioning with attention to the interacting processes. Research as related to intellectual and perceptual changes, memory and adaptive capacity will be assessed and problems related to research in this field considered. PROFESSOR WIGDOR

204-406B. PSYCHOLOGICAL TESTS AND MEASUREMENT. (3 Credits; *Prerequisite:* Psychology 204-204A or B or its equivalent. 2 lectures, 1 conference.) An introduction to the theory and practice of psychological and educational measurement. Special attention will be paid to the theoretical problems involved in the use of measurement techniques and statistics in psychology. A wide variety of tests will be discussed in the areas of clinical, social, educational, and personality psychology. PROFESSOR MACNAMARA

204-408A. PRINCIPLES OF BEHAVIOUR MODIFICATION. (3 Credits; *Prerequisites:* Psychology 204-337A and 204-300A or permission of instructor; 2 lectures, 1 conference.) An introduction to theory and research relevant to the modification of human behaviour. Emphasis will be on those studies in which specific behaviour — sub-optimal or maladaptive — is altered in accordance with contemporary principles of learning. Some opportunity for field work may be available. *Text:* Kanfer & Phillips: *Learning Foundations of Behavior Therapy.* PROFESSOR POSER

204-410D. ADVANCED CHILD PSYCHOLOGY. (6 Credits; *Prerequisite:* Psychology 204-304D. The course involves bi-weekly panel discussions of 1 hour and alternate week planning sessions of 1 hour as well as informal meetings with small groups of students.) An intensive study of selected areas of child psychology such as cognitive and perceptual development, language development, and social and personality development. PROFESSOR SHULTZ

204-411D. SELECTED TOPICS IN SOCIAL PSYCHOLOGY. (6 Credits; 3 lectures, 1 conference.) A broad coverage of various sources of influence that shape personalities and give structure to human behaviour. The attempts of social philosophers to explain man's social nature are contrasted with contemporary, more experimental approaches, e.g. cognitive, learning-theory, group process, and cultural. PROFESSOR LAMBERT

204-412A. DEVIATIONS IN CHILD DEVELOPMENT. (3 Credits; *Prerequisite:* Psychology 204-304D; 2 lectures, 1 conference.) This course will consider deviations in perceptual, cognitive, social and emotional development. Emphasis will be on research and theory which underline the complex interactions among constitutional and environmental factors which lead to such disorders as brain injury, psychosis, mental retardation, learning difficulties and behaviour problems. *Text:* Quay & Werry (Eds.) *Psychopathological Disorders of Childhood, 1972.* PROFESSOR S. CAMPBELL

204-415D. STUDY OF ADOLESCENTS. (6 Credits; 1 lecture, 1 conference, 3 hours field work; Not given in 1973-74.) The course deals with the adolescent's (a) bodily changes; (b) sex-related behaviour and interests; (c) peer and family relationships; (d) patterns of response to authority; (e) identity strivings; (f) learning, achievement, and vocational concerns; (g) patterns of motivated and emotional behaviours; (h) types of coping style. Students will work with troubled adolescents as tutors and advisors.

204-420D. ADVANCED PHYSIOLOGICAL PSYCHOLOGY. (6 Credits; *Prerequisite:* Psychology 204-308D or permission of instructor; 2 lectures.) The behaviour of animals at various phylogenetic levels, with particular emphasis on the relation between the nervous system and behaviour. *Text:* Milner: *Physiological Psychology.* PROFESSOR MILNER

204-425A. LANGUAGE AND THOUGHT. (3 Credits; *Prerequisite:* a course in psycholinguistics or in linguistics or in the philosophy of language; 2 lectures, 1 conference.) The meaning of meaning, the psychological nature of linguistic competence, the relations between language and thought, between language and logic, machine translation, the learning of language by infants — these are among the topics which will be discussed in the light of contemporary theory and research in psychology, linguistics and philosophy. The course is for students with a serious interest in language. PROFESSOR MACNAMARA

204-430B. CONSTITUTIONAL FACTORS IN BEHAVIOUR. (3 Credits; Seminar.) Individual differences in motivational and temperamental characteristics will be examined in relation to constitutional-experimental interactions with special reference to genetic factors, blood-chemistry variables, and environmental influences. PROFESSOR STERN

204-431B. PHILOSOPHICAL PROBLEMS IN PSYCHOLOGY. (Also Philosophy 107-493B. 3 Credits; 1 2-hour seminar, 1 conference; Not given in 1973-74.) The relationship of modern psychological theories and data to ethical problems will be studied. Particular examination will be made of the problems of freedom and responsibility.

204-433B. SELECTED TOPICS IN PERSONALITY. (3 Credits; *Prerequisite:* Psychology 204-332A; 2 lectures, 1 conference.) An intensive study of the behavioural approach to personality. The emphasis is on a functional analysis of personality. PROFESSOR ———

204-450D. EXPERIMENTAL PROBLEMS. (6 Credits; *Prerequisites:* Psychology 204-300A, 301B, or 302A and permission of instructor.) Practical experience in research methods. The class is divided into sections of 10-12 students which meet for 3 hours each week. Specific procedures may vary among sections, but in addition to class meetings students carry out one or more research projects and write a thesis based on one of them. Primarily for Major and Partial students who intend to proceed to graduate studies. **NOTE:** Students will be

admitted on the basis of a written application on forms available from the Department (Room W8/1). Applications must be submitted by September 1. STAFF

204-451D. STUDY OF THE INTELLECTUALLY AND EMOTIONALLY HANDICAPPED. (6 Credits; 1 lecture, 1 conference, 4 hours laboratory; *Prerequisite:* Permission of instructor.) The effects of environmental deprivation on intellectual, motivational and emotional development will be examined. Students will participate in a service and research project in community programs dealing with children from disadvantaged environments who have educational and emotional handicaps. PROFESSOR ———

204-452D. COGNITIVE DEVELOPMENT. (6 Credits; *Prerequisites:* Psychology 204-302A or 304D and permission of instructor.) Theories and research in early cognitive development with emphasis on Piaget's work. Topics covered include early experience, environmental stimulation and deprivation, and their effects on later development, the relation between cognitive and emotional growth and the role of pre-school education. As much as possible instruction will be offered in modular form: students will study a selected number of topics independently and at their own pace. Peer interaction and consultations with the instructor and assistant will complement the individual work. Wherever feasible field work will be integrated in the course work. PROFESSOR GOLDSCHMID

204-453D. PSYCHOLOGY AND CONTEMPORARY ISSUES. (6 Credits; *Prerequisites:* Psychology 204-204A or B, 305A or B and two other psychology courses. 1 seminar a week.) A student-directed course. Students select their own topics of study and work on them, under the direction of staff members, singly or in groups. Students also evaluate the work done — theoretical papers or research reports — on a pass-fail basis. STAFF

204-454D. LABORATORY METHODS IN PSYCHOBIOLOGY. (3 Credits; *Prerequisite:* permission of instructor; 1½ hour seminar.) Methods used in comparative and physiological studies are reviewed and evaluated with emphasis on the assumptions and principles underlying the major techniques. Laboratory demonstrations and exercises. *Text:* Skinner: *Neuroscience, A Laboratory Manual.* PROFESSOR CAMPBELL

204-455D. RESEARCH METHODS IN PSYCHOLINGUISTICS. (6 Credits; 3 hour seminar. Restricted to graduate and final year students in psychology and linguistics.) Various research approaches used by psychologists and linguists will be critically evaluated. Each student will select and conduct a major research project which he will discuss with other seminar members during the course of the year. The use of basic, relevant methodological tools will be reviewed and the effects of experimenter expectancy will be discussed. PROFESSOR TUCKER

204-456D. APPLICATION OF PSYCHOLOGICAL PRINCIPLES TO EDUCATIONAL PROBLEMS. (6 Credits; *Prerequisites:* Psychology 204-305A or B and permission of instructor; 2 lectures.) Psychological principles of learning, behavioural analysis, and individual differences as they relate to the problems of education and instruction. Students will design and conduct experiments. This course is not intended to meet the requirements for the course in Educational Psychology required as part of the training program for teachers. PROFESSOR PASCAL

204-458B. METHODS OF BEHAVIOUR CHANGE. (3 Credits; *Prerequisites:* Psychology 204-408A and permission of instructor; 1 lecture, 2 conferences.) Various techniques of behaviour change will be evaluated in the light of their practical efficacy. In the course of supervised field work, in hospitals and schools, students will have an opportunity to apply some of these techniques systematically. PROFESSOR POSER

204-480D. CONTEMPORARY PSYCHOLOGICAL THEORY. (6 Credits. For Honours students only. 2 lectures, 1 conference.) Recent progress towards the integration of psychological knowledge into a coherent framework is discussed with reference to theoretical ideas and experimental evidence in the areas of learning, motivation, perception, thinking, personality, and mental abnormality. PROFESSOR ———

204-481D. EXPERIMENTAL PROBLEMS. (6 Credits; 2 hours plus laboratory; for Honours students only.) A seminar on current problem areas. Supervised investigation of a special field. STAFF

204-491D. ADVANCED STUDY IN BEHAVIOURAL DISORDERS. (6 Credits; *Prerequisites:* Psychology 204-337A and 338B and permission of instructor; 3 hours lecture or tutorial.) A critical examination of the necessary conditions in behavioural problems. Emphasis will be on analysis of theoretical positions and experimental findings as they relate to both etiology and treatment. PROFESSOR PIPER

204-492A/204-493B. SEMINARS IN SPECIAL TOPICS. (3 Credits.) Each seminar under this title is given at the discretion of an individual instructor. A list of all seminars offered in a particular year, together with the description of topics and conditions of admission, will be published annually in the Department's Handbook of Courses and Programs. A student may not register in more than one of these seminars in any year. STAFF

COURSES IN THE FACULTY OF MANAGEMENT

The Faculty of Management offers the following courses in the Behavioural Sciences: 280-221A, Behavioural Science 1 (3 credits); 280-222B, Behavioural Science II (3 credits); 272-420A, Group Dynamics and Interpersonal Relations (3 credits); 272-421B, Strategies of Management and Organization Development (3 credits); 275-458A, Consumer Behaviour (3 credits); 275-495A, Marketing Research (3 credits).

Where appropriate to a student's program, and with the permission of the program adviser, one or more of these courses may be taken for credit by students enrolled in programs in psychology. Programs in such fields as personnel management, administrative behaviour, and consumer behaviour are also available to students through a cooperative arrangement between the Faculty of Management and the Department of Psychology.



11 ALPHABETICAL LIST OF STAFF

ABRAMOVITCH, H.	Microbiology and Immunology
ABRAMSON, H. D.	Computer Science
ADAMS, C. J.	Religious Studies
ADDISON, J. R.	Physics
ALI KHAN, Z.	Microbiology
AMASUNO, M.	Spanish Language and Literature
ANANTHANARAYANAN, K.	Computer Science
ANDERSON, H. S.	English
ANDERSON, W.	Mathematics
ANGENOT, M.	French Language and Literature
ARCAND, B.	Anthropology
ARNOLD, A.	Chairman, German Department
ARONSON, D. R.	African Studies Program; Anthropology
ASIMAKOPOULOS, A.	Economics
AUBERT, J. P.	French as a Second Language
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AUDERSET, C.	Mathematics
AUSTIN, G. L.	Physics
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BERGMANN, R.	Art History
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DORSINVILLE, M.	History; Centre d'Etudes Canadiennes-Françaises
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DUER, L. T.	English
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DUPRE, J.	Biochemistry
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FOX, E.	Mathematics
FOX, T.	Mathematics
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FRASER, M. J.	Biochemistry
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FREEMAN, D. R.	Social Work
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FROJMOVIC, M. M.	Physiology
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GHOBRIAL, L. T.	Recorder
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GILL, P.	Microbiology and Immunology
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GOLDBERG, A.	English
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GOLDENBERG, S.	Economics
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GOLDSMITH, H.	Chemistry
GOLDSMITH, H. L.	Physiology
GOLDSMITH-REBER, T.	German
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GORDON, C. D.	Classics
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GORESKY, C. A.	Physiology
GORING, D. A. I.	Chemistry
GOWRISANKARAN, C.	Mathematics
GOWRISANKARAN, K.	Mathematics
GRAHAM, A. F.	Chairman, Biochemistry
GRAHAM, J.	Mathematics
GRANT, P. R.	Biology
GRANT, W. F.	Biology
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GREEN, C.	Economics

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HARVEY, S. C.	Anatomy
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JERRY, L. M.	Biochemistry
JOHNSTON, G.	Religious Studies
JOHNSTONE, R. M.	Biochemistry
JONES, H.	French Language and Literature
JONSSON, W.	Mathematics
JUDKINS, W.	Chairman, Art History
JULIEN, A.	French Language and Literature
JUST, G.	Chemistry

KACHANOFF, R.	Psychology
KAFER-BOOTHROYD, E.	Biology
KALFF, J.	Biology
KALZ, G. G.	Microbiology and Immunology
KANUNGO, R.	Psychology
KAPICA, L.	Microbiology and Immunology
KAPLAN, L.	Jewish Studies Program
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KATZ, M.	Social Work
KAUFMAN, H.	Mathematics
KEMP, W. B.	Geography
KENNEDY, A.	Mathematics
KHAZZOOM, D.	Economics
KIERANS, E.	Economics
KINGSBURY, D.	Mathematics
KIRBY, J. C.	Religious Studies
KITCHING, J. E.	Physics
KLIBANSKY, R.	Philosophy
KLIMA, S.	English
KLISSOURAS, V.	Physiology
KOOSIS, P.	Mathematics
KOPRIWA, B.	Anatomy
KOUNIAS, E.	Mathematics
KOVACS, E. M.	Pharmacology and Therapeutics
KRNJEVIC, K.	Physiology
KROHN, R. G.	Sociology
KULLY, R. M.	German
KUNZ, F. A.	Political Science; African Studies Program
KURIEN, J.	Economics
LABUTE, J.	Mathematics
LACH, E.	German
LAFFEY, E.	History
LAFLEUR, M.	Physics
LAFON, M.	English
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LALLI, C.	Biology
LAM, C. S.	Physics
LAMBEK, J.	Mathematics
LAMBERT, W. E.	Psychology
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LANGFORD, W.	Mathematics
LANGLEBEN, M. P.	Physics
LANGSTADT, R.	Art History
LAPIERRE, L. L.	History
LAPP, W. S.	Physiology
LASZLO, C. A.	Physiology
LATOUCHE, D.	Political Science; Centre d'Etudes Canadiennes-Françaises
LAUNAY, J. L.	French Language and Literature
LAWRUK, B.	Mathematics
LEBLOND, C. P.	Anatomy Department, Chairman
LECLERCQ, R.	French as a Second Language
LEE, J. K. P.	Physics
LEGALL, N.	French as a Second Language
LEGGETT, W.	Biology
LEGOUX, M. N.	French as a Second Language
LE GUILLOU, J. Y.	Russian and Slavic Studies
LEIGHTON, H. G.	Meteorology
LELLA, J.	Sociology
LEMON, R. E.	Biology
LEMYZE, J. C.	French Language and Literature
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LIEBLEIN, L.	English

LIGHTFOOT, D. W.	Linguistics
LIMENTANI, A.	Italian Language and Literature
LIN, P. T. K.	History; East Asian Language and Literature
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LOUFTI, M. A.	Economics
LOUFTI, M. F.	Economics
LOWENTHAL, J.	Pharmacology and Therapeutics
LUCAS, A.	English
LUCAS, A.	Senior Adviser
MACDONALD, J.	Social Work
MACINTOSH, F. C.	Physiology
MACKENZIE, K.	Mathematics
MACKENZIE, R. E.	Biochemistry
MACKEY, M.	Physiology
MACKLEM, P. T.	Physiology
MACLACHLAN, G. A.	Biology, Chairman
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MADISON, D. M.	Biology
MAGILL, J.	Social Work
MAIER, K.	Biology
MAITRE, H. J.	German
MALLOCH, A. E.	English
MALLORY, J. R.	Political Science
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MANDL, G.	Physiology
MANKIEWICZ, E.	Microbiology and Immunology
MANLEY, G.	Biology
MANLEY, R. ST. J.	Chemistry
MARCUS, L.	Social Work
MARGOLIS, B.	Physics
MARK, S. K.	Physics
MARLEY, A. A. J.	Psychology
MARSAGLIA, G.	Director, School of Computer Science
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MARSHALL, J. S.	Meteorology; Physics
MARTIN, F.	Economics
MARTIN, R. F.	Geological Sciences
MARTIN, W. M.	Physics
MARTINEZ, N.	Spanish Language and Literature
MASLOWE, S.	Mathematics
MASON, S. G.	Chemistry
MASSAM, B. H.	Geography
MATHAI, A.	Mathematics
MATHESON, B. H.	Microbiology and Immunology
MATHEWSON, G.	English
MATHISON, J. F.	Physics
MAUGEY, A.	French Language and Literature
MAXWELL, M. P.	Chairman; History
MCCULLAGH, P. F.	Classics
MCDOUGALL, C. M.	Registrar
MCGILLIVRAY, R.	French Language and Literature
MCGILLY, F. J.	Social Work
MCGILVRAY, J.	Philosophy
MCKAY, J. K. S.	Computer Science
MCKENZIE, J. M.	Physiology
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MELAMED, S.	Mathematics

MELVILL JONES, G.	Physiology
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MENDELSON, J.	Microbiology and Immunology
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MERRETT, T. H.	Computer Science
METCALFE, R.	Political Science
METRAKOS, J. D.	Biology
MICHALSKI, A.	Spanish Language and Literature
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OSMOND, D. G.	Anatomy
OSWALD, I.	Assistant Secretary of the Faculty
OUIMETTE, V.	Spanish Language and Literature
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PLETNEV, R. V.	Russian and Slavic Studies
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POOLE, R. J.	Biology
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RATTRAY, B.	Mathematics
RATZER, G. F. G.	Computer Science
REESAL, M. R.	Biochemistry
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REICHERTZ, R.	English
REISWIG, H.	Biology
REVERCHON, M. T.	French Language and Literature
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RICHARDS, G. K.	Microbiology and Immunology
RICHARDSON, J. B.	Pharmacology and Therapeutics
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RIGELHOF, R.	Mathematics
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ROBERTSON, A. A.	Chemistry
ROBERTSON, D.	Meteorology
ROBERTSON, M. C.	Pharmacology and Therapeutics
ROBERTSON, R. F.	Chemistry
ROBINSON, B.	English
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ROBINSON, J.	Chairman, Philosophy
ROBSON, H. G.	Microbiology and Immunology
ROBSON, J. M.	Physics
ROCKMAN, A.	English
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ROGERS, R. R.	Meteorology
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RONSLEY, J.	English
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ROSS, V. M.	Social Work

ROTH, C.	Mathematics
ROTHOLZ, T.	Social Work
ROWLINSON, E.	Mathematics
ROY, J. L.	Centre d'Etudes Canadiennes-Françaises
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RUBIN, D. S.	English; North American Studies Program
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RUEDY, J. R.	Pharmacology and Therapeutics
RUNNALS, D. R.	Religious Studies
RUSSELL, P.	Mathematics
RYAN, D. G.	Physics
SAHA, G. B.	Chemistry
SALISBURY, R. F.	Anthropology
SALZMAN, P. C.	Anthropology
SANCHEZ, J.	Spanish Language and Literature
SANCHO, N.	Mathematics
SARF, H.	Political Science
SASYNIUK, B. I.	Pharmacology and Therapeutics
SATTLER, R. O.	Biology
SAULL, V. A.	Geological Sciences
SCAROWSKY, P.	Mathematics
SCHACTER, A.	Classics
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SCHLEIPER, A.	Psychology
SCHLIEPER, H. C.	History
SCHMIDT, G.	Mathematics
SCHMIDT, J.	German
SCHULMAN, H. M.	Biology
SCHULTZ, T.	Psychology
SCHUSTER, I.	German
SCRIVANO, R.	Italian Language and Literature
SCRIVER, C. R.	Biochemistry; Biology
SEKELJ, P.	Physiology
SENIOR, H.	History
SESHADRI, V.	Mathematics
SHAPIRO, E.	Biology
SHAPIRO, M. M.	Physics
SHARP, R. T.	Physics
SHAW, C.	Microbiology and Immunology
SHEPPARD, B.	French as a Second Language
SHEPPARD, P.	Director, Admissions Office
SHILCROUT, E.	Anthropology
SHINER, E. V.	Social Work
SHINGLER, J.	Political Science
SHULMAN, A.	Social Work
SHULMAN, L.	Social Work
SHUSTER, J.	Biochemistry
SIBBALD, K.	Spanish Language and Literature
SIBOO, R.	Microbiology and Immunology
SILOV, R.	Microbiology and Immunology
SILVERTHORNE, M. J.	Classics
SIMKIN, D. J.	Chemistry
SIMON, M.	English
SINCLAIR, R.	Biology
SINDELL, P.	Anthropology
SIROTA, D.	Social Work
SITTMANN, K.	Biology
SMITH, A.	French Language and Literature; Centre d'Etudes Canadiennes-Françaises
SZEICZ, G.	Geography
SMITH, J. G.	Economics; African Studies Program
SNIDER, G. L.	Classics
SODERSTROM, L.	Economics
SOLIN, C.	Mathematics
SOLOMON, D. N.	Chairman, Sociology
SOLOMON, S.	Biochemistry

SOMERS, J. M.	Biology
SOURKES, T. L.	Biochemistry
SOUTHIN, J. L.	Biology
SPECTOR, M.	Sociology
SPEIRS, C.	Social Work
SPENCE, J.	Biology
SPENCE, L.	Microbiology and Immunology
SPENCER, J. H.	Biochemistry
STAIRS, D. G.	Physics
STANSBURY, E. J.	Dean of the Faculty of Science; Physics
STAROSTA, I.	French Language and Literature
STEARN, C. W.	Chairman, Geological Sciences
STEEDMAN, D. W.	French Language and Literature
STEELE, S.	Social Work
STEIN, J.	Political Science
STEIN, M.	Political Science; Centre d'Etudes Canadiennes-Françaises; North American Studies Program
STEINBERG, B.S.	Political Science
STERN, M.	Psychology
STEVEN, D. M.	Biology
STEVENSON, J. S.	Geological Sciences
STEVENSON, J. W.	Microbiology and Immunology
STEVENSON, M.	Social Work
STEVENSON, R.	Physics
STEVENSON, R. W.	Religious Studies
STEWART, P. D.	Italian Language and Literature
ST. PIERRE, L. E.	Chairman, Chemistry
STROM-OLSEN, J. O.	Physics
STYAN, G.	Mathematics
SURKIS, A.	Psychology
SUSSMAN, D.	Mathematics
SUVIN, D.	English
SWIATAK, H.	Mathematics
TAM, K.	Mathematics
TANNENBAUM, R.	Social Work
TAURINS, A.	Chemistry
TAYLOR, C.	Philosophy
TAYLOR, D.	Psychology
TAYLOR, J.	Mathematics
TEMBECK, R.	English
TENCER, L.	Jewish Studies Program
TENENHOUSE, A.	Pharmacology and Therapeutics
TENNENHOUSE, K.	Mathematics
TERRASSE, J.	French Language and Literature
TERROUX, F. R.	Physics
THEALL, D. F.	Chairman, English
THERRIEN, L.	Microbiology and Immunology
THOMSON, D. C.	Vice Principal (Planning)
THOMPSON, J. H.	History
THORPE, W. D.	Director, Computing Centre
TICHOUX, A.	French Language and Literature
TOMASZUK, P. V.	Classics
TOUSSAINT, G.	Computer Science
TRASLER, D.	Biology
TRENTMAN, J. A.	Philosophy
TRIFARO, J. M.	Pharmacology and Therapeutics
TRIGGER, B. G.	Chairman, Anthropology
TRISCHUK, J. M.	Physics
TUCKER, G. R.	Psychology
TURNER, J.	Mathematics
TYSON, H.	Biology
UGALDE-CUESTA, V.	Spanish Language and Literature
URTNOWSKI, E.	Social Work
VAILLANCOURT, P.	Political Science
VALENTI, A. M.	Computer Science

VAN DELFT, L.	French Language and Literature
VARMA, D. R.	Pharmacology and Therapeutics
VARY, J. M.	Spanish Language and Literature
VAS, S. I.	Microbiology and Immunology
VEILLEUX, L.	Geography
VELK, T.	Economics; North American Studies Program
VERMES, R.	Mathematics
VICAS, A.	Economics
VIGNEAULT, R.	French Language and Literature
VIVANTE, P.	Classics
VOGEL, R.	Dean of the Faculty of Arts; History
VON ESCHEN, D.	Sociology
VOWINCKEL, E.	Meteorology
WADDELL, E.	Geography
WALKER, J.	Philosophy
WALLACE, P. R.	Physics
WALLER, H. M.	Chairman, Political Science
WALLERSTEIN, I.	Sociology; African Studies Program
WALSH, D.	Physics
WANG,P.	East Asian Language and Literature
WARD, J.	Anatomy
WARSHAWSKY, H.	Anatomy
WASSERMAN, A. R.	Biochemistry
WEBBER, G. R.	Geological Sciences
WEBER, R. M.	Linguistics
WECHSLER, A.	Physiology
WEEMS, B. F.	English
WEES, W.	English
WEINROTH, H. S.	History,
WELDON, J. C.	Economics
WELDON, P.	Physiology
WESTLEY, W. A.	Sociology; Director of Research, Industrial Relations Studies Program
WHITE, N.	Psychology
WHITEHEAD, M. A.	Chemistry
WIGDOR, B.	Psychology
WILLIAMS, D.	English
WILLIAMS, R. L.	Physiology
WILLIAMSON, D.	Spanish Language and Literature
WILLIS, L.	Senior Adviser
WILSON, C. M.	Biology
WILSON, R. G.	Geography
WILSON, W. E.	Anatomy
WINKLER, C. A.	Chemistry
WISSE, R.	Jewish Studies Program
WOLFE, L. S.	Biochemistry
WOLFSON, N.	Biology
WOLLOCH, G. M.	Classics
WOOD, E.	Microbiology and Immunology
WOODSWORTH, D. E.	Director, Social Work
WOONTON, G. A.	Physics
WURZBURGER, B.	Economics
YAFFE, L.	Chemistry
YALOVSKY, M.	Mathematics
YAPHE, W.	Microbiology and Immunology
YONG, M. S.	Pharmacology and Therapeutics
ZABLOCKA-ESPLIN, B.	Pharmacology and Therapeutics
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ZLOBEC, S.	Mathematics
ZUCKERMAN, M.	Physics

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McGill University

FACULTY OF DENTISTRY

1973-1974

Strathcona Anatomy and Dentistry Building
3640 University Street*
Montreal 112, Que., Canada

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 11 73

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C.	Principal and Vice-Chancellor
Stanley B. Frost, B.D., M.Th. (London), Dr. Phil. (Marburg), D.D. (Vic., Tor.), D. Litt. (Mem.)	Vice-Principal (Administration and Professional Faculties)
Eigil Pederson, B.A. (SGWU), M.A. (McGill), D.Ed. (Harvard).	Vice-Principal (Academic)
Allan C. McColl, D.F.C., B.Com., C.A.	Director of Finance
Ernest R. Ambrose, D.D.S., F.I.C.D., F.A.C.D.	Dean of the Faculty
Kenneth C. Bentley, D.D.S., M.D., C.M., F.I.C.D.	Dental Surgeon-in-Chief, Montreal General Hospital
Lyman E. Francis, D.D.S., M.Sc., F.A.C.D., F.R.C.D.(C), F.I.C.D.	Assistant Dean (Graduate Studies and Research)
William D. Sanders, B.Sc., D.D.S.	Assistant Dean (Undergraduate)
John H. Holton, B.Com. (Tor.)	Secretary of the Board of Governors
Colin M. McDougall, D.S.O., B.A.	Registrar

2 GENERAL INFORMATION

2.1 REQUIREMENTS FOR ENTRANCE

The minimum requirement for admission to the study of dentistry is the satisfactory completion of EITHER the Collegiate program in the Province of Quebec OR two full years in a four year program leading to the B.A. or B.Sc. degree (or the equivalent thereof). In each instance the program *must* include one full year course in each of the following subjects:

English
Mathematics
Physics, with laboratory
Inorganic or General Chemistry, with laboratory
Organic Chemistry, with laboratory
General Biology or Zoology, with laboratory (half year of Botany and half year of Zoology will be accepted, but not one year of Botany alone)

On the successful completion of the second year of the Dental program, students who have entered this Faculty from the third year of the old curriculum of the Faculty of Arts or Science of McGill University are eligible to apply for their B.A. or B.Sc. degree. Students are advised to confirm their eligibility for this degree with the Faculty concerned.

Applicants who have completed the academic requirements may be required to take an aptitude test upon their admission to the study of dentistry.

Canadian applicants are requested to undertake the Canadian Dental Association Aptitude Test and have the results sent to the Faculty. Detailed information may be obtained from the Administrator, Dental Aptitude Test Program, The Canadian Dental Association, 234 St. George Street, Toronto 180, Ontario.

Candidates applying from the United States should take the American Dental Association Aptitude Test and have the results sent to the Faculty of Dentistry.

Application for admission to the Faculty of Dentistry must be made upon the regular application form which may be obtained from the Secretary of the Faculty. As the number of students in each class is limited, application should be made early and in any case not later than the *first of March.* Each application must be accompanied by a *non-returnable fee of $15.00* in the form of a cheque or money order payable to McGill University. Students registered at McGill are exempt from this fee.

A reservation fee of $50.00 is payable by the applicant within ten days of the receipt of notice that he has been accepted for admission. This fee will be credited towards the applicant's University fees, but *will not be returned* if he fails to register at the opening of the session.

2.2 PROFESSIONAL PRACTICE

Applicants are reminded that a University degree in dentistry does not in itself confer the right to practise the profession of dentistry. It is necessary to comply with the dental laws of the country, state, or province in which it is proposed to begin practice. *Students therefore are, advised to register their qualifications at the beginning of their University course with the licensing body in the area in which they intend to practise.*

2.2.1 PROVINCIAL REQUIREMENTS

2.2.1.1 Province of Quebec

In the case of those who intend to practise in the Province of Quebec, it is essential that the candidate register with the College of Dental Surgeons of the Province of Quebec upon commencing his dental studies. Further information may be obtained from the Registrar of the College of Dental Surgeons of the Province of Quebec, 801 Sherbrooke Street East, Montreal 132, Quebec.

Candidates who have successfully completed the regular program as given in the Faculty of Dentistry, McGill University, may be granted the licence; provincially, by the satisfactory completion of the College of Dental Surgeons of the Province of Quebec progress survey throughout the program; and nationally, by registering with the National Dental Examining Board prior to the completion of the final year of studies.

2.2.1.2 Other Provinces

The following is a list of the provincial Dental Boards in Canada. Students are advised to write to those listed below for information whenever they are in doubt as to the regulations of any province.

ALBERTA – Dr. G.E. Decker, 9901 – 108 Street, Edmonton.
BRITISH COLUMBIA – Mr. K. Croft, Managing Director, 325–925 West Georgia St., Vancouver 1.
MANITOBA – Dr. Ross McIntyre, 308 Kennedy St., Winnipeg 2.
NEW BRUNSWICK – Dr. H.H. Peters, 440 Champlain St., Saint John.
NEWFOUNDLAND – Dr. B.L. Bowden, 203 Lemarchant St., St. John's.
NOVA SCOTIA – Dr. S.G. Bagnall, P.O. Box 604, Halifax.
ONTARIO – Mr. I.E. Cato, Secretary, 230 St. George St., Toronto 180.
PRINCE EDWARD ISLAND – Dr. A.L. MacLean, 293 Water St., Summerside.
QUEBEC – Dr. M.B. Archambault, 801 Sherbrooke Street East, Montreal 132.
SASKATCHEWAN – Dr. F.R. Smith, 606 Canada Bldg, Saskatoon.

2.2.2 NATIONAL DENTAL EXAMINING BOARD OF CANADA

The National Dental Examining Board of Canada issues a certificate to successful candidates which may be registered with the Canadian provincial licensing boards for the purpose of securing a licence to practise. This privilege will be granted only on receipt of a proper application dated not later than March 30th of the year of graduation. Failure to apply by that date will entail the passing of an examination in order to receive the certificate.

Candidates must hold a degree in dentistry from a school of dentistry approved by the Council on Education of the Canadian Dental Association at the time of graduation; or be certified by the Dean or Registrar of a University as a bona-fide senior year student of an approved dental school.

Detailed information may be obtained from Dr. D.B. Proctor, Registrar, National Dental Examining Board of Canada, 287 MacLaren Street, Ottawa K2P OL9, Ontario.

2.2.3 NATIONAL DENTAL EXAMINING BOARD OF THE U.S.

Students intending to practise in the United States are advised to contact the Secretary, Council of the National Board of Dental Examiners, American Dental Association, 211 East Chicago Ave., Chicago, Illinois 60611. Information should also be obtained from the Secretary of the licensing board of the specific state in which the student intends to practise.

2.3 REGISTRATION

Registration for the 1973-74 session will be Tuesday, September 4. Information and forms for payment of fees will be forwarded in the summer. All lectures will begin on Wednesday, August 29, 1973 for first year students; and in the following week for upper years.

2.4 RESIDENCE

Students who wish to apply for residential accommodation must do so on special forms which may be obtained from the Registrar's Office.

2.5 FEES

The University reserves the right to make changes without notice in its published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions as described in the General Announcement.

2.5.1 TUITION FEES

Annual undergraduate fee $690.00
(including Students' Society and *Dental Review* fees)
By instalments: Each of two instalments $345.00
(plus one half of the applicable equipment, supply and rental fees noted below)

2.5.2 REPEATING A YEAR

Students repeating a year pay $690.00

2.5.3 EQUIPMENT SUPPLIES AND RENTALS

In First year — Instrument & equipmental (rental) 75.00
In Second year — Handpiece (rental) 25.00
In Second year — Instrument & equipment (rental) 125.00
In Third year — Handpiece (rental) 25.00
In Third year — Clinic handpiece (rental) 85.00
In Third year — Instrument & equipment (rental) 150.00
In Fourth year — Handpiece (rental) 25.00
In Fourth year — Clinic handpiece (rental) 85.00

2.5.4 AD EUNDEM FEE

Transfer students entering any year above the first pay a special *ad eundem* fee of $10.00

2.5.5 GENERAL REGULATIONS

1. Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due 10 days after registration, the second instalment before January 11, 1974.

A late payment fee of $10.00 is charged for payment within the first 30 days; and $25.00 thereafter.

2. Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 24, 1973. Instructions for paying fees in advance will be mailed to all upper year students, either with their Reports of Sessional Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this for payment of the first instalment of fees, must obtain from the Student Aid Office, McGill University, a Permit to Delay Payment of Fees.

The second instalment is due January 11, 1974. A late payment fee of $10.00 is charged for payment within the first 30 days; and $25.00 thereafter.

3. Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

Note: *Special fees* are given in the *General Announcement.*

2.6 INSTRUMENTS

In additional to the rental fee, certain items of equipment and supplies are purchased by each student. Approximate cost of this equipment is as follows:

First year $275.00
Second year $100.00
Third year . . . . . $ 50.00

Books are not included in these amounts.

2.7 MEDALS, PRIZES AND AWARDS

FOURTH YEAR:

Medals will be awarded for first, second and third place overall standing in the four years of the course.

Prizes will be awarded for highest standing in the Basic Sciences and Oral Medicine; and in Preventive and Restorative Dentistry.

THIRD YEAR:

Prizes will be awarded for first and second place overall standing.

SECOND YEAR:

Prizes will be awarded for first and second place overall standing; and for highest standing in the Basic Sciences and in Dental Anatomy and Applied Sciences over the two-year period.

FIRST YEAR:

Prizes will be awarded for first and second place overall standing.

The details of these prizes are presently under review and further information will be available in the 1974-75 announcement.

2.7.1 SCHOLARSHIPS, BURSARIES AND LOANS

Details of University and other scholarships and bursaries are given in the *Scholarships Announcement,* which may be obtained from the Registrar's Office.

The University has a fund from which loans may be made to students of good academic standing.

The College of Dental Surgeons of the Province of Quebec has created a loan fund to assist students of the Faculty who are registered with the College. The W.K. Kellogg Foundation Loan Fund and the Dental Students' Society Dean D.P. Mowry Memorial Fund are available to assist any student registered in the Faculty.

Loans are made only to students in the upper years. Applications for all loans should be made to the Student Aid Office.

2.8 CLINICAL FACILITIES

The McGill University Dental Clinic is an integral part of the Department of Dentistry of the Montreal General Hospital. At the Clinic, under the guidance of the dental staff, students are taught to carry out all phases of clinical dentistry and related laboratory procedures.

The Third and Fourth year students attend this Clinic daily except for such time as may be taken up by lectures or other University work. Students entering the Third year must spend the period between the last of the regular May examinations and the middle of June in the Clinic.

An abundance of teaching material in all aspects of dentistry is always available. Integration with the Montreal General Hospital offers the facilities of all departments in the Hospital and allows the students to observe a wide variety of interesting and unusual cases under treatment.

Graduate students, interns, registered nurses, and dental assistants are in attendance.

2.9 LIBRARY

Undergraduate dental students are fortunate to have, for their use, a modern dental library on the 1st floor of the Strathcoma Anatomy and Dentistry Building. There is a wide selection of major textbook publications in all fields as well as a world-wide assortment of periodical literature. There is a full time librarian in charge as well as assistants to enable the staff and students to obtain the advice and help they require in the field of dentistry. The library is open daily and in the evenings for the use of the dental community.

3 PROGRAM FOR THE DEGREE OF D.D.S.

3.1 CURRICULUM

Candidates for the degree of Doctor of Dental Surgery must have completed the requirements for entrance as noted in Section 2.1, before entering upon the four-year program in this Faculty.

The dental curriculum is as follows:

FIRST YEAR
Anatomy, General
Biochemistry
Dental Anatomy and Applied Sciences
- Dental Materials
- Occlusion
- Operative Dentistry
- Prosthodontics (Fixed)
- Prosthodontics (Removable)

Histology, General
Histology, Oral
History, Dental
Orientation in Dentistry
Physiology
Statistics

THIRD YEAR
Anaesthesiology
Behavioural Science
Dental Pharmacology and Therapeutics
Endodontics
Epidemiology and Dental Health Care
Medicine
Occlusion
Operative Dentistry
Oral Diagnosis and Pathology
Oral Surgery
Orthodontics
Paedodontics
Periodontics
Practice Administration
Prosthodontics (Fixed)
Prosthodontics (Removable)
Radiology

SECOND YEAR
Anaesthesiology, Local
Microbiology and Immunology
Occlusion
Operative Dentistry
Orthodontics
Nutrition
Pathology, General
Pathology, Oral
Periodontics
Pharmacology, General
Preventive Dentistry
Prosthodontics (Fixed)
Prosthodontics (Removable)
Radiology

FOURTH YEAR
Endodontics
Essay
Jurisprudence
Occlusion
Oral Surgery
Operative Dentistry
Oral Medicine Seminar
Orthodontics
Paedodontics
Periodontics
Practice Administration
Prosthodontics (Fixed)
Prosthodontics (Removable)
Restorative Dentistry Seminar

590-425P Essay: Final year students must write an essay of approximately 4,000 words. The subject will be announced early in September.

* It should be understood that this curriculum is subject to change without notice.

3.2 ATTENDANCE

Students who have failed to attend at least seven-eights of the lectures, laboratory or clinical periods in any course may be refused the right to attempt the final examination in that course.

3.3 HEALTH INSURANCE

A compulsory health insurance plan for non-Canadian students is operable throughout the University. *All non-Canadian students will be required to participate.* The annual premium will be payable with the first instalment of fees.

3.4 REGULATIONS GOVERNING EXAMINATIONS AND ADVANCEMENT

Occasional oral and written examinations are held throughout the session to test the progress of the student. Final examinations in most subjects are held at the end of session.

A minimum of 60 per cent in each subject is required to pass and 80 per cent for Honours.

At the discretion of Faculty, the following regulations will apply.

All examinations in each year must be passed before a student is allowed to advance to the next.

Candidates who fail at the regular examinations in not more than two subjects may be allowed supplemental examinations before the beginning of the following session. These examinations are held during the week preceding the regular opening of the session.

Candidates who fail in three subjects at the regular examinations or who are unsuccessful in the supplemental examinations may be permitted to repeat the year.

Candidates who fail at the regular examinations in more than three subjects will be required to withdraw.

A student repeating a year must attain, at the regular examination, satisfactory standing in all courses. Failing this, the student will be required to withdraw.

A single grade D (60%) is considered a passing mark. In the presence of additional D or F grades, all D grades are considered failures.

A student who, in any year, fails in a subject in which practical or clinical work is necessary, may be required to fulfil prescribed additional clinical or laboratory work before presenting himself for supplemental examination. A fee may be attached to these requirements.

The Faculty reserves the right to require the withdrawal of any student at any time, if, in the opinion of his instructors, he displays unprofessional conduct or is incompetent.

The quality of the written language will be considered in evaluating examinations.

Applications for supplemental examinations must be made to the Dean's office at least 30 days before the date set for each examination, and must be accompanied by a fee of $10.00 for each examination.

Subjects comprising practical and theoretical components shall be reported as a single mark in final examinations.

3.5 QUALIFICATIONS FOR THE DEGREE

1. Candidates for the degree of Doctor of Dental Surgery shall have attended courses of instruction for four full sessions in the Faculty of Dentistry of this University.

2. Students of other universities who may be admitted to advanced standing in this University are required to pass a qualifying entrance examination and thereafter the same examinations as regular students of this University.

3. Candidates for the degree, admitted in advanced standing as noted above, shall have completed at least the final year of the course at this University.

4. Every candidate for the degree shall provide evidence of satisfactory completion of all of the required subjects which comprise the dental curriculum.

3.6 DENTAL INTERNSHIPS

3.6.1 GRADUATE INTERNS

a) Rotating Internships

The Faculty of Dentistry, through the McGill-Hospitals Dental Internship Committee, offers

eight rotating dental internships in Montreal hospitals beginning *July 1* each year. Applications for internships should be received prior to *December 31* in any year. Further details may be obtained by writing to the Chairman of the Internship Committee.

b) **First Year Residency in Paedodontics**
One candidate is selected each year for this one-year program beginning *July 1*. For further information apply to the Director of Dental Services, The Montreal Children's Hospital, 2300 Tupper Street, Montreal 108, P.Q.

c) **Residency Program in Oral Surgery**
One candidate is selected each year for this program beginning *July 1*. For further information apply to the Department of Oral Surgery, Faculty of Dentistry, McGill University, P.O. Box 6070, Montreal 101, P.Q.

d) **Straight Internship in Prosthodontics**
One candidate is selected each year for this program beginning *July 1*. For further information apply to the Department of Prosthodontics, Faculty of Dentistry, McGill University, P.O. Box 6070, Montreal 101, P.Q.

3.6.2 STUDENT INTERNS

In the senior year the student serves as a student intern for a period of two weeks. During this time he lives in the Montreal General Hospital with room, meals and uniforms provided. He serves each morning in the Oral Diagnosis and/or Screening Clinics and is on call with the resident intern for the remainder of the entire day for the diagnosis and dental treatment of hospitalized cases both on the wards and in the main hospital operating theatres with the attending oral surgeons. In this way the student is afforded an excellent opportunity to observe and to participate in dental services under hospital conditions. During this student internship, the student functions in a similar capacity for a few days at the Montreal Children's Hospital.

3.7 DENTAL OFFICER TRAINING PLAN

The Dental Officer Training Plan is offered by the Canadian Forces to undergraduates interested in a military career following graduation.

The plan is designed to assist dental students financially, in that it provides for payment of tuition, instruments, supplies and books; and in addition, pay in accordance with rank. The plan also provides training during the summer months for the undergraduate as an officer in the Armed Forces.

To be eligible a student must be able to meet the Canadian Forces standards for enrolment and be academically acceptable, without condition, to any one of the four professional years of the dental faculty.

Full details of the Dental Officer Training Plan may be obtained from Canadian Forces Recruitment and Selection Unit, 1254 Bishop Street, Montreal.

4 COURSES OF INSTRUCTION

Division of Community Dentistry

4.1 BEHAVIOURAL SCIENCE

Third Year (590-327P)
Lecturer – C. Yung

This course consists of lectures and seminars designed to introduce the student to the requirements for the better understanding of human beings, particularly dental patients. The

discussions will touch on such topics as the characteristics and behaviour patterns of cooperative and uncooperative patients; fear and anxiety and methods of patient management; motivation and learning, etc.

4.2 EPIDEMIOLOGY AND DENTAL HEALTH CARE

Professor – S. Lee, (Acting Chairman)
Associate Professor – L.F. Davignon
Assistant Professors – S. Ducic; G. Gibbs; F. Fenton; J. Manfreda; F. White; J. Stamm.

Third Year (513-311P)
This course consists of lectures and seminars designed to introduce students to the methods used in the assessment of health in a population. With this background in health evaluation, the student is introduced to modern approaches in the provision of community health services. Various facets of dental health care delivery are discussed.

4.3 HISTORY, DENTAL

Lecturer – M. Hebert
Guest Lecturer – C.C. Bourne

First Year (590-112P)
A consideration of the evolution of dentistry as a profession from *Zinjanthropus hominid* to the present, comparing primitive conditions and methods of the past with those of today with special attention to the contributions of outstanding personalities and events.

4.4 JURISPRUDENCE, DENTAL

Lecturer – P. Graham

Fourth Year (590-412P)
A discussion of the Dental Act, the Health Act, and other laws governing the practice of dentistry.

The responsibility of the dentist under the laws of the Province and his position as defendant in suits for damages, as plaintiff in suits for fees and as expert witness in cases between other parties are fully explained. Legal and taxation aspects of the business arrangements of dental practice are also considered. (Text – Harvey Sarner, *Dental Jurisprudence*).

4.5 NUTRITION

Lecturer – J.H. Geggie

Second Year (590-227P)
This course consists of lectures and seminars on nutrition and diet as they affect both systemic and oral health. The emphasis is on nutritional status assessment and diet counselling with particular reference to dental health.

4.6.1 PRACTICE ADMINISTRATION

Assistant Professor – A.J. Schutz (co-ordinator)
Lecturers – E.R. Ambrose; J.A. Claener; R.G. Laybourn; H.L. Mussells; Z.B. Nyeste; H.R. Swetland; D. Townsend; C. Yung.

Fourth Year (590-417P)
A study of the orderly arrangement and administration of all the useful facilities and services needed for a professional practice, based on needs, demands, regulations, system, analysis, psychology and common sense in dealing with people.

It is concerned with all the functions of the dental office which are not part of operative, technical or diagnostic procedures. (Texts — *Business of Dental Practice*: Professional Publishing Corp.; Neil B. Brahe, *Executive Dynamics in Dental Practice*; Robert K. Stinaff, *Dental Practice Administration*).

4.6.2 THIRD YEAR (590-317P)

An introduction to the spectrum of available dental equipment and supplies and how they are most effectively used in practice of general dentistry.

4.7 PREVENTIVE DENTISTRY

Associate Professors — E. Hosein; A. Ortiz; H. Warshawsky; G.H.G. Weinlander
Assistant Professors — G. Harasymowycz; J. Stamm
Lecturers — J. Claener; M. Finesilver

Second Year (590-228P)
This course consists of lectures to give a scientific understanding of the initiation and progression of the major dental diseases. In addition, the student is introduced to the most important techniques and agents which are used in the prevention of these diseases. Included is a look at the current and future research in this field.

4.8 STATISTICS

Assistant Professor — J.W. Stamm
First Year (590-126P)
This course consists of an introduction to the principles of descriptive and inferential statistics as applied to dental science. The course stresses the proper collection, tabulation and presentation of data. In addition, it is intended to familiarize the student with those statistical concepts which will help in the interpretation of the dental professional literature.

Division of Preventive and Restorative Dentistry

4.9 DENTAL ANATOMY AND APPLIED SCIENCES

Associate Professor — W.D. Sanders (Chairman)
Assistant Professors — J.F. Giacomelli; D.E. Laszlo
Lecturers — J.T. Elo; J.D. Fenwick; S.M. Kennedy; C.L. Moran; D.T. Shizgal, M.D. Shizgal
Demonstrators — S.S. Blum; J.A. Claener; G.M. Griffiths; C.L. Herscovitch; T.C. Postans; G. Poznak; I. Seltzer; A.F. Small; M. Szikman; A. Tekela; R.B. Van Winckle; Roxanne M. Whitehead.

4.9.1 DENTAL ANATOMY

First Year (590-114P)
Instruction in the form and function of normal teeth and supporting tissues, and the development of manual dexterity in the student through drawings and waxing procedures, and sectioning of natural teeth.

4.9.2 APPLIED SCIENCES (590-115P)

An introduction to the theory and practical application of procedures relating to prosthetic dentistry — both removable and fixed — and to operative dentistry.

4.9.3 OCCLUSION

Occlusal concepts are developed through an appreciation of the anatomy and physiology of the masticatory system. (Text — Wheeler, *Textbook of Dental Anatomy and Physiology*, 4th. ed.: Saunders)

4.10 DENTAL MATERIALS

Lecturer — W. Kowal; M. Pinchuk

First Year (590-115P)
Introduction to basic physical and chemical properties of materials followed by a discussion of materials used.

Second Year (590-215P)
Presentation in greater detail of the physical and mechanical properties as well as chemical and structural features of clinical dental materials. (Texts — E.W. Skinner, *The Science of Dental Materials*, 5th Edition; Peyton et al., *Restorative Dental Materials*).

4.11 ENDODONTICS

Assistant Professor — B. Sedlezky (Chairman)
Lecturers — R.J.C. David; D.J. Munro; B.H. Wiener
Demonstrator — P. Lawrence
Guest Lecturer — (Chosen each year)

Fourth Year (590-411P)
A concentrated course in the theory and clinical practice of endodontics, correlated with the teachings of the Departments of Microbiology and Immunology, Pathology, Histology, Oral Surgery and Dental Anatomy given midway through the junior year and followed by weekly clinical sessions until the end of the senior year. (Texts — L.I. Grossman, *Root Canal Therapy*; Sommer, Ostrander and Crowley, *Clinical Endodontics*; E. Nicholls, *Endodontics*; Ingle, *Endodontics*, Lea and Febiger; Bender and Seltzer, *The Pulp*, Lippincott).

4.12 OPERATIVE DENTISTRY

Professor — E.R. Ambrose (Chairman)
Associate Professors — Harry Rosen; W.D. Sanders; G.H.G. Weinlander
Assistant Professors — G. Harasymowycz; M. Shevell
Lecturers — J.R. FongChong; H. Greenwald; P. Hwang; W. Kowal; Z.B. Nyeste
Demonstrators — S. Blanshay; P. Guilbault; N.I. Hanna; A.S. Israel; G.M. Johnston; C.P. Jolin; F.A. Kay; J.E. Kehoe; B.L. Mendel; I.I. Silver; D. Solomon; J.W. Whitehead

Second Year (590-214P)
Third Year (590-314P)
Fourth Year (590-414P)
Students receive the basic, and where indicated some advanced, theoretical laboratory and clinical instruction in: diagnosis and treatment planning; prevention; the "biomechanical" treatment for diseased and/or traumatized tooth structure; the anatomical restoration of individual teeth in all age groups; to physiologic form and function; with the restorative

materials generally used by the dental practitioner. (Texts – Howard, *Atlas of Operative Dentistry*: Mosby; Bell and Grainger, *Basic Operative Dentistry Procedures*: Lea & Febiger; Gilmore, *Textbook of Operative Dentistry*: Mosby; Schultz, *Operative Dentistry*: Lea & Febiger; Ingraham and Koser, *An Atlas of Gold Foil and Rubber Dam Procedures*: West Orange County, California.)

4.13 ORTHODONTICS

Associate Professors – R.W. Faith (Chairman); M.D. Rennert
Lecturers – A.J. Colle; C.M. Solomon
Demonstrator – S.S. Miller
Guest Lecturer – H.T. Oliver

Second Year (590-215P)
Third Year (590-315P)
Fourth Year (590-415P)
Courses comprise lectures, technique exercises, treatment of selected cases and seminars.

The purpose of the course is to present as much theoretical background as possible and to make the student familiar with diagnostic procedures and with the preventive, interceptive and limited corrective procedures that can be undertaken in a general dental practice. (Texts – Graber, *Orthodontics*, 3rd ed.: W.B. Saunders Co., 1972; Moyers, *Handbook of Orthodontics*: The Year Book Publishers Inc., Ed. 2nd., 1963; Salzmann, *Practice of Orthodontics*: J.B. Lippincott Co., 1966; Sassouni, *Orthodontics in Dental Practice*: Mosby, 1971).

4.14 PAEDODONTICS

Associate Professor – Gerard H.G. Weinlander (Chairman)
Professor – Ernest R. Ambrose
Lecturers – Roberta Dundass; Wilfrid R. Robinson; P.R. Weinstein
Demonstrator – C.J. Teasdale

Third Year (590-316P)
Lecture course on child management, treatment planning, operative procedures, management of injuries to teeth and preventive dentistry for children.

A concentrated laboratory course covers routine cavity preparations, amalgam restorations and stainless steel crown adaptation on deciduous manikin teeth, and endodontic procedures on extracted deciduous teeth.

Clinical dentistry for children commences following the laboratory course.

Fourth Year (590-416P)
Clinical dentistry for children in the University Dental Clinic. (Texts – Finn, *Clinical Pedodontics*: Saunders; Ellis, *The Classification and Treatment of Injuries to the Teeth of Children*: Year Book Publishers; Law, Lewis, Davis, *An Atlas of Pedodontics*: Saunders; McDonald, *Dentistry for the Child and Adolescent*: Mosby).

4.15 PERIODONTOLOGY

Associate Professors – Robert F. Harvey (Chairman); Philip J. Gitnick
Assistant Professors – S. Galperin; F. I. Muroff
Lecturers – E.M. Hershenfield; E. Shore; M. Stutman; A. S. Wainberg
Guest Lecturer – W. Lovett

First Year (590-118P)
Twelve hours introductory lectures and clinic re: oral hygiene procedures, role of basic sciences. Five hours lectures related to Anatomy and Biochemistry.

Second Year (590-218P)
Fifty hours of introductory lectures, laboratory courses and demonstrations and introduction to clinical experiences.

Third Year (590-318P)
Forty–five hours of lectures and seminars and sixty hours of clinical demonstration and participation and assisting seniors.

Fourth Year (590-418P)
Thirty hours of lectures and seminars and two hours per week in clinical Periodontics.

In addition, demonstrators in the department are available or in attendance in Operative, Crown and Bridge, Prosthetic, Endodontic and multidiscipline clinics. (Texts – Goldman & Cohen, *Periodontal Therapy*, 4th. ed.: Glickman, *Clinical Periodontology*, 4th ed.; Grant, Stern & Everett, *Orban's Periodontics*, 4th ed.; *Occlusion*, 2nd ed.; Ramfjord & Ash: Reference – *Physiological Role of Dental Occlusion in the Masticatory System*, Vol. 1 & 2: R.G. Jones).

4.16 FIXED PROSTHODONTICS

Associate Professors – R.G. Jones (Chairman); W.H. Boyles;
Assistant Professors – G. Harasymowycz; R.T. Lamb; H. Ptack
Lecturers – J.D. Fenwick; J.R. Fong Chong; S.M. Kennedy
Demonstrators – J.M. Little; E. Ostro; M. Pinchuk; D. Taylor; R.B. Van Winckle
Visiting Lecturer – L.P. Lemay
Demonstrator in Ceramics – A. Wilson
Demonstrators in Dental Technology – R. Baillie; I. Blumberger; H. Heuvelink; N. Jones; A. Pickard.

First Year (590–121P)
Second Year (590-221P)
Third Year (590-321P)
Fourth Year (590-421P)
A detailed course in the theory and clinical practice of Fixed Prosthodontics. In the pre–clinical years, the student is introduced to the basics of Fixed Prosthodontics by lecture series, reading assignments and laboratory participation.

In the clinical years (3rd and 4th) the students fabricate fixed bridges for clinical patients. Lectures, seminars and reading assignments are used to increase the student knowledge and understanding of Fixed Prosthodontics. (Texts – Johnston, Phillips and Dykema, *Modern Practice in Crown and Bridge Prosthodontics*: Saunders, Skinner and Phillips. *The Science of Dental Materials*: Saunders; Wilson and Lang, *Practical Crown and Bridge Prosthodontics*: McGraw; Bassett, Ingraham and Koser, *An Atlas of Cast Gold Crowns*: West Orange County, California, Stanly D. Tylman, *Crown and Bridge Prosthesis:* Mosby; Victor O. Lucia, *Modern Gnathological Concepts:* Mosby; Kornfeld, Max, *Mouth Rehabilitation*, Volumes I and II: Mosby; Johnston, Mumford and Dykema, *Modern Practice in Dental Ceramics:* Saunders).

4.17 REMOVABLE PROSTHODONTICS

Associate Professor – D.W. Henry – (Acting Chairman)
Assistant Professors – J.F. Giacomelli; M. Shevell
Lecturers – A.F. Cameron; J.T. Elo; W. Kowal; L. Puchinger; W.B. Zimakas

Demonstrators — J.D. Badger; L.C. Barnes; R.G. Fletcher; S. Homayun; G. Konanec; L. Lazare; G. Poznak; P.C. Staples; F. Vosburg

Second Year (590-220P)
Third Year (590-320P)
Fourth Year (590-420P)
Instruction in the examination, diagnosis, treatment planning, construction and maintenance phases related to removable partial dentures and the abutment teeth, complete dentures. (Texts — O.C. Applegate, Essentials of *Removable Partial Denture Prosthesis*: W.B. Saunders; W.L. McCracken, *Partial Denture Construction*: C.V. Mosby; Swenson, *Complete Dentures*: C.V. Mosby; E.L. Miller, *Removable Partial Prosthodontics*; Sharry, *Complete Denture Prosthodontics*: McGraw–Hill; H.W. Preiskel, *Precision Attachments in Dentistry*: Mosby; Charles M. Heartwell, Jr., *Syllabus of Complete Dentures*; Lea & Febiger).

Division of Surgery and Oral Medicine

4.18 ANAESTHESIOLOGY LOCAL AND GENERAL

Offered under the direction of the Department of Oral Surgery.

Associate Professor — K.C. Bentley (Chairman)
Assistant Professor — D.S. Shapiro
Guest Lecturers — Malcolm Dunkley; Thomas McCaughey

4.18.1 LOCAL

(590-324P)
Second and Third Years
Anaesthetic drugs and solutions, the evaluation of new drugs and techniques, with a review of related anatomy are discussed. Demonstrations and clinical experience are provided.

4.18.2 GENERAL

Third Year
General principles and the physiology of anaesthesia with emphasis on factors of safety and the suitability of the agent used are discussed. Co-operation with the anaesthetist under hospital or office conditions and emergency resuscitative measures are stressed. (Texts — Niven and Bourgoyne, *Conduction, Infiltration and General Anaesthesia in Dentistry*; Archer, *Dental Anaesthesia*; Monheim, *Local Anaesthesia and Pain Control in Dental Practice*; Howe, Whitehead, *Local Anaesthesia in Dentistry*).

4.19 ANATOMY

Professors — C.P. Leblond (Chairman); Y. Clermont; R.S. Harris; D.G. Osmond
Associate Professors — B. Kopriwa; P.K. Lala; N.J. Nadler; H. Warshawsky
Assistant Professors — G. Bennett, S.C. Harvey; A. Herscovics; M. Weinstock; W.E. Wilson
Lecturers — J.R. Adams; F. Brahim; H. Cheng; E. Daniels; U.F. Lalli
Sessional Lecturer — A. Morton

4.19.1 GROSS ANATOMY

(504–111P)
First Year (3 terms)

A general survey of the body by means of lectures and demonstrations; dissection of head and neck with special lectures and demonstrations emphasizing points of dental interest. (Texts – A.J. Berger, *Elementary Human Anatomy*, Ist ed.: John Wiley and Sons, 1964; J.C.B. Grant, *A Method of Anatomy*, 7th ed.: Williams and Wilkins, 1965; D.A. Davies & F. Davies, *Gray's Anatomy*, 33rd ed.: Longmans, 1962).

4.19.2 HISTOLOGY

First year (504-112P)
The study of the cytology and structure of human tissues and organs. (Texts – A.W. Ham, Histology, 5th ed.: Lippincott, 1965; W. Bloom and D.W. Fawcett, *A Textbook of Histology*, 6th ed.: Saunders, 1962).

4.19.3 ORAL HISTOLOGY AND EMBRYOLOGY

First Year (504-117P)
A microscopic study of the delevopment of the teeth and their supporting structures, and of the adult oral tissues through their life cycle. (Text – D.V. Provenza, *Oral Histology, Inheritance and Development*: Lippincott, 1964).

4.20 BIOCHEMISTRY

Professors – A.F. Graham (Chairman); D. Rubinstein; S. Solomon; T.L. Sourkes; J.H. Spencer; L.S. Wolfe
Associate Professors – P. Braun; D.T. Denhardt; M.J. Fraser; E.A. Hosein; Rose M. Johnstone; A.R. Wasserman
Assistant Professors – E. Harpur; R.E. MacKenzie; E.A. Meighen; S. Millward
Lecturer – M.R. Reesal

First Year (507-113P)
An outline of the general subject of biochemistry with a more special knowledge of such aspects as bear particularly on the science and practice of dentistry. Two to four lectures and one laboratory per week from September to May; (Texts – Joseph C. Muhler, *Textbook of Biochemistry for Students of Dentistry* : C.V. Mosby; E.P. Lazzari, *Dental Chemistry*: Lea and Febiger).

4.21 DIAGNOSIS ORAL

Professors – A.G. Racey (Chairman); L.E. Francis
Associate Professors – T.P. McCrory; A. Ortiz
Demonstrators – R.P. Langlais; A.F. Sonin

Third Year (590-328P)
A continuation of the second year course in Oral Pathology in which the clinical and radiographic aspects of the various conditions are discussed with emphasis on differential diagnoses. The student internship program provides invaluable practical support for this course. (Text – Stafne, *Oral Roentgenographic Diagnosis*; Michell, Standish and Fast, *Oral Diagnosis/Oral Medicine*).

4.22 MEDICINE

Associate Professors – J.L. McCallum (Chairman), S.O. Freedman; D. Hillman
Assistant Professors – J.L. Hutchison; G. Joron; M.F. Mizgala

Lecturers — K. Cantor; R. LaFleur; O. Schlapner
Demonstrator — F. Aoki

Third Year (526-313P)
A review of the principles of medicine with particular attention to the relationship of good prenatal care and proper nutrition during infancy and childhood to dentition and the subsequent health of teeth and gums; oral manifestations of systemic disease and the importance of oral health in the successful treatment of certain medical conditions; and medical complications of dental surgery and their prophylaxis.

4.23 MICROBIOLOGY AND IMMUNOLOGY

Professors — S.I. Vas (Chairman); B.H. Matheson; J.S. Stevenson; W. Yaphe
Associate Professors — Z. Ali Khan; C.A. Butas; E.C.S. Chan; P.M. Cooke; J. de Vries; P. Gill; L. Kapica; G.K. Richards; H.G. Robson
Assistant Professors — H. Abramovitch; M. Brazeau; E. Mankiewicz, J. Mendelson; R. Siboo
Lecturers — W. Dion; S. Nommik; E. Wood
Demonstrator — C. Shaw
Teaching Assistants — D. Cristeanu; L. Therrien

Second Year (529-213P)
Elementary dental bacteriology and immunology. (30 lectures and 60 hours laboratory; Text — Jawetz, Melnick & Adelberg, *Review of Medical Microbiology*; Lange Medical Publication).

4.24 PATHOLOGY, GENERAL

Professors — R.H. More (Chairman); D.S. Kahn; G. Tremblay
Assistant Professors — G. Berry; W. Hauser; M. Kirk
Lecturer — I. Kerner

Second Year (546-216P)
A course in the general principles of pathological reactions and their application to disease states and correlation to oral pathology. (Two lectures per week with epidiascopic and microscopic demonstrations — 30 lectures; five small group seminars with gross and microscopic demonstrations, 10 hours. Text — Walter, Hamilton and Israel, *Principles of Pathology for Dental Students*: Churchill).

4.25 PATHOLOGY, ORAL

Professor — A. Gerald Racey (Chairman)
Associate Professors — T.P. McCrory; A. Ortiz
Assistant Professor — D.S. Shapiro

Second Year (590-217P)
A consideration of all conditions, both local and systemic, that affect the oral cavity, including dental caries and diseases of the pulp, developmental disturbances, tumours and cysts, infections and injuries, and the oral manifestations of metabolic disease. Laboratory periods supplement the lectures. (Texts — Shafer, Hine and Levy, *Oral Pathology; Color Atlas of Oral Pathology*: Lippincott; Scopp, *Oral Medicine*).

4.26 PHARMACOLOGY AND THERAPEUTICS

Professors — M. Nickerson (Chairman); J. Lowenthal; K.I. Melville
Associate Professors — B.G. Benfey; N.R. Eade; L.E. Francis; J.R. Ruedy; D.R. Varma
Assistant Professors — R. Capek; B. Collier; E.M. Kovacs; R.I. Ogilvie; R.E. Rangno; J.B. Richardson; M.C. Robertson; B.I. Sasyniuk; A. Tenenhouse; J.M. Trifaro; B. Zablocka–Esplin

Second Year (549-219P)
A course of 41 lectures, given twice weekly, concerned with the basic principles of the actions of drugs and applied therapeutics where indicated. (Texts — Sutherland, *A Synopsis of Pharmacology*; Andres Goth, *Medical Pharmacology*; Goodman and Gilman, *The Pharmachological Basis of Therapeutics*, 4th ed.).

4.27 PHARMACOLOGY AND THERAPEUTICS, DENTAL

Professor — L.E. Francis (Chairman)
Associate Professor — Joan de Vries
Assistant Professor — J.W. Stamm

Third Year (590-319P)
A study of those drugs that have special application to dental practice. Lectures and seminars reviewing various pathological conditions and possible therapy. (Texts — A.D.A. *Accepted Dental Remedies 1968*; Sutherland, *A Synopsis of Pharmacology; Compendium of Pharmaceuticals and Specialties*, 7th ed. 1972).

4.28 PHYSIOLOGY

Professors — J. Milic–Emili (Chairman); R.I. Birks; T.M.S. Chang; K. Krnjevič; F.C. MacIntosh; G. Melvill Jones
Associate Professors — R.F.P. Cronin; J.R. Dirks; D.R. Firth; P. Gold; C. Polosa; P. Sekelj
Assistant Professors — M.W. Cohen; M.M. Frojmovic; V. Klissouras; W.S. Lapp; M. Levy; M. Mackey; G. Mandl; J.S. Outerbridge; A. Wechsler; R.L. Williams
Lecturers — M. Hazucha; P. Weldon
Associate Members — M.E. Avery (Prof., Paediatrics); M.R. Becklake (Prof., Experimental Medicine); B.A. Cooper (Prof., Experimental Medicine); B.O. Dubrovsky (Assist. Prof., Psychiatry); P. Gloor (Prof., Experimental Neurophysiology); H.L. Goldsmith (Prof., Experimental Medicine); C.A. Goresky (Prof., Medicine); E.J. Hinchey (Assoc. Prof., Surgery); C.A. Laszlo (Assist. Prof., Biomedical Engineering); P.T. Macklem (Prof., Medicine); J.M. McKenzie (Prof., Experimental Medicine); L.D. McLean (Prof., Surgery); M.M. Morris (Assist. Prof., Anesthesia).

First Year (552-116P)
Selected topics in areas of human physiology of particular significance for dental practice. These will include the more detailed study of aspects of blood, the cardiovascular, respiratory, digestive, endocrinological and central nervous systems. (2 hours of lectures and 3 hours laboratory time per week, for 1 term only (During the 1973-74 session, this will be offered in the term beginning in January.)). *Prerequisite:* Physiology 211D at McGill, or a similar "college course" in Physiology. (For the 1973-74 session only, students who have not fulfilled this requirement will be asked to participate in a program of basic physiology lectures including those offered in the Physiology 211D course from September to mid-December). Textbook — No text specified. Recommended reading lists will be provided for each of the subjects studied.

4.29 RADIOLOGY

Professor — A. Gerald Racey (Chairman)
Associate Professor — K.C. Bentley
Demonstrators — R.P. Langlais; A.F. Sonin

Third Year (590-322P)
During a three—week period in the Summer Clinic a course of lectures and demonstrations is presented. These include Radiation Physics, Clinical Techniques, Interpretation and Film Processing. This course is presented to the incoming Third year.

During the year, two Third-year students are on duty each day to take and process all emergency radiographs as well as each taking two full mouth surveys of teaching cases.

Both bisecting-angle and long cone paralleling techniques are used in these demonstrations and exercises. (Texts — Stafne, *Oral Roentgenographic Diagnosis*; Weurhmann and Manson-Hing, *Dental Radiology*).

4.30 SURGERY, ORAL

Associate Professors — Kenneth C. Bentley (Chairman); John J. McCarthy; Eric P. Millar
Assistant Professors — D.S. Shapiro; Robert M. Wiener
Lecturers — Gary L. Freedman; Edward Slapcoff
Demonstrator — Mervyn Gornitsky

Third Year (590-323P)
Fourth Year (590-423P)
Courses are designed to develop with the student a foundation of professional knowledge coupled within surgical skill to enable him to diagnose and manage competently the oral surgery problems related to the practice of general dentistry. The student is also expected to acquire an academic appreciation of the advanced field of oral surgery, which involves the diagnosis, treatment, prescribing for and operating upon any disease, injury, malformation or deficiency of the human jaws or associated structures.

The course in anaesthesiology is offered under the direction of the Department of Oral Surgery. (Texts and Reference Books — Thoma, *Oral Surgery;* Archer, *Oral Surgery*; Nevin and Bourgoyne, *Conduction, Infiltration and General Anaesthesia in Dentistry*; Rowe and Killey, *Fractures of the Facial Skeleton*; Kazanjian and Converse, *The Surgical Treatment of Facial Injuries*; Schwartz, *Disorders of the Temporomandibular Joint*; H.G. Clark, *Practical Oral Surgery*; G. L. Howe, *The Extraction of Teeth*; G.O. Kruger, *Text-book of Oral Surgery*; Killey and Kay, *Benign Cystic Lesions of the Jaws).*

5 COURSES OFFERED IN THE FACULTY OF GRADUATE STUDIES AND RESEARCH

5.1 DIPLOMA IN RESTORATIVE DENTISTRY AND PROSTHODONTICS

Associate Professor — H. Rosen (Director)
Professors — E.R. Ambrose; L.E. Francis
Associate Professors — K.C. Bentley; R.F. Harvey; D.W. Henry; R.G. Jones; A. Ortiz; J.W. Stamm
Guest Lecturers — J. Fiset; D.C. Gordon; H.L. Mussells; F.E. Shamy; H. Skurnik; J. Valiquette; J. Vincelli
Members of the Departments of — Endodontics, Operative Dentistry, Oral Surgery, Orthodontics, Pathology & Diagnosis, Periodontics, Pharmacology & Therapeutics, Fixed and Removable Prosthodontics.

This course is tailored to the needs and interests of the candidate seeking training which is beyond the scope of a four-year undergraduate program.

Clinical cases requiring occlusal therapy will be treated by the participant under supervision.

A total patient, multi-disciplined approach will be emphasized for cases presenting with periodontal disease, wear, congenital defects and/or temporomandibular joint problems. The program includes experience in removable and maxillofacial prosthesis.

This supervised clinical experience will be enhanced by didactic lectures, seminars, practice teaching and office visits. Participation in a clinical research project is expected.

Duration — One academic year beginning in September, leading to a Diploma.

Further information may be obtained from the office of the Assistant-Dean (Graduate Studies and Research), c/o Faculty of Dentistry, McGill University, P.O. Box 6070, Montreal 101, P.Q.

Tuition: $575

5.2 MASTER OF SCIENCE (RESTORATIVE DENTISTRY AND PROSTHODONTICS)

Associate Professor — H. Rosen (Director)
Professor — E.R. Ambrose
Associate Professors — K.C. Bentley; R.F. Harvey; D.W. Henry; R.G. Jones; A. Ortiz
Guest Lecturers — J. Fiset; D.C. Gordon; H.L. Mussells; F.E. Shamy; H. Skurnik; J. Valiquette; J. Vincelli
Members of the Department of — Endodontics, Operative Dentistry, Oral Surgery, Orthodontics, Pathology and Diagnosis, Periodontics, Pharmacology and Therapeutics, Fixed and Removable Prosthodontics.

Admission is restricted to candidates who hold a D.D.S. or equivalent degree with good standing from an approved institution. Preference will be given to those applicants who have been in general practice or rotating internships for at least one year. The Master's course requires two academic years (20 months). Disciplines involved are: Advanced Operative Dentistry, Fixed Prosthodontics, Maxillofacial Prosthesis, Removable Prosthodontics as well as supportive and allied clinical sciences. The course will consist of didactic lectures, case presentation seminars, treatment of clinical cases under supervision, reports on clinical cases, teaching assistantship, selected office visits. Candidates will be required to attend pertinent basic science lectures. A research project must begin by the end of the first year and continue through the second year resulting in a Master's thesis.

Duration — Two academic years beginning in September.

Two candidates are accepted each year.

Tuition (approximate): $652.00 for the first year
$325.00 for the second year

5.3 MASTER OF SCIENCE (ORAL SURGERY)

Associate Professors — K.C. Bentley (Director); J.J. McCarthy; E.P. Millar
Assistant Professor — D.S. Shapiro
Lecturer — G.L. Freedman

A residency training program in Oral Surgery has been developed to provide students with a comprehensive background for the practice of Oral Surgery as a speciality.

During the three years of the program the candidate will serve as a first year resident, second year resident and third year resident. During this time he will be given increasing responsibility for the care of in-patients and out-patients, as well as being required to fulfill certain basic science courses and other assignments. Candidates for this program must possess a D.D.S. or D.M.D. degree or its equivalent, and be acceptable to the College of Dental Surgeons of the Province of Quebec as a training candidate in a hospital. A research project must be commenced in the second year of the program and continued throughout the third year, followed by a Master's thesis.

Duration — Three academic years commencing July 1.

Further information may be obtained by writing to Dr. K.C. Bentley, Dental Clinic, Montreal General Hospital, Montreal 109, P.Q.

The program is open to one candidate per year. Books and instruments are supplied.

Tuition (approximate): $652.00 for each of the first two years
$325.00 for each additional year

Information for financial support for these courses may be obtained by writing to the Director of the course.

6 CONTINUING DENTAL EDUCATION

Assistant Professors — A.J. Schutz (Co-ordinator); J.W. Stamm

CREDIT COURSES

At periodic intervals, the Faculty, along with other established bodies in the health field, sponsors courses in Continuing Dental Education which are recognized for Continuing Dental Education credits by dental licensing bodies.

Generally the Faculty offers a series of limited enrolment courses in various clinical and basic sciences related to dentistry. In most cases, the courses are designed to meet the needs of the general practitioner, to keep him abreast of current concepts and practices and to make him aware of recent advances in dental science.

Enquiries should be directed to:

Co-ordinator of Continuing Education
Division of Community Dentistry
Faculty of Dentistry
McGill University
P.O. Box 6070
Montreal 101, Quebec.

McGill University

FACULTY OF EDUCATION 1973-1974

3700 McTavish Street*
Montreal 112, Que., Canada
Telephone (514) 392-8866

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

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CALENDAR FOR SESSION 1973-1974

1973

July 3, Tuesday to August 10, Friday	Summer Session
August 13, Monday to August 24, Friday	Supplemental Examinations
September 3, Monday	Labour Day
September 5, Wednesday	Registration in Diploma programs in Education Course Counselling all new B.Ed. students
September 6, Thursday	Course Counselling returning U2 students
September 7, Friday	Course Counselling returning U3 students
September 10, Monday	Diploma programs begin Registration all new B.Ed. students
September 11, Tuesday	Registration returning U2 students
September 12, Wednesday	Registration returning U3 students
September 18, Tuesday and 19, Wednesday	Registration E2 Education students
September 20, Thursday	Lectures begin in College Equivalent and Degree programs in Education Lectures begin in Masters and Doctoral programs in Education
September 21, Friday	Last day for Registration in the Faculty of Graduate Studies & Research
October 5, Friday	Last day for Education course changes
October 8, Monday	Thanksgiving
October 26, Friday	Deadline for withdrawing from 'A' courses
November 30, Friday	Deadline for withdrawing from 'D' courses
November 6, Tuesday	Fall Convocation
December 14, Friday	Last day of lectures in Diploma programs in Education
December 17, Monday to December 19, Wednesday	Examinations and mid-year evaluations in Diploma programs in Education
December 19, Wednesday	Last day of lectures in Degree programs in Education

1974

January 3, Thursday to January 18, Friday	Examinations in Degree programs in Education
January 7, Monday	Diploma programs resume
January 21, Monday	Degree programs resume Last Day for Education course changes (Diploma programs)
February 4, Monday	Last day for course changes (Degree programs)
February 22, Friday	Deadline for withdrawing from 'B' courses
March 1, Friday and March 2, Saturday	Mid-term weekend holiday. Lectures cancelled
April 12, Friday to April 15, Monday (incl.)	Easter. Lectures cancelled
April 19, Friday	Last day of lectures: Degree programs only
April 22, Monday to May 8, Wednesday	Examinations in Degree programs
April 26, Friday	Last day of lectures: Diploma programs
April 29, Monday to May 3, Friday	Examinations in Diploma programs in Education
May 20, Monday	Victoria Day. Administrative offices closed
June 5, Wednesday to June 8, Saturday	Convocations.

1 STAFF

ADMINISTRATIVE OFFICERS

Robert Edward Bell, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C. — *Principal and Vice-Chancellor*

C.W. Hall, M.A. (Bishop's) — *Dean*

D.A. Burgess, B.Sc., M.A. (Durham), F.R.G.S. — *Associate Dean*

The Rev. John P. Hilton, S.T.L. (Mtl.), M.A. (Cath. U. of America, Washington) — *Associate Dean*

John H. Holton, B.Com. (Tor.) — *Secretary to the Board of Governors*

Allan C. McColl, D.F.C., B.Com., C.A. — *Director of Finance*

Colin M. McDougall, D.S.O., B.A. — *Registrar*

INSTRUCTIONAL STAFF

Dennis Adams, B.A. (Calif.), M.S. (S.Cal.) Ph.D. (Wis.) — *Associate Professor of Education*

Morton J. Bain, B.A. (Mt. Allison), M.Ed. (Vermont) — *Associate Professor of Education*

Carolyn Barnes, M.A. (P.E.) (McGill) — *Lecturer in Education*

Gordon J. Bennett, Dip.Ed. (Southampton), Dip.R.Ed. (Reading U.), B.A. (SGWU), M.Ed. (Boston) — *Associate Professor of Education, Director of Student Teaching*

Faith H. Berthault, B.A. (London) — *Assistant Professor of Education*

Mary E. Bews, B.A. (Queen's) — *Assistant Professor of Education*

Lewis B. Birch, B.Sc., M.A. (Birm.) F.B.Ps.S. — *Professor of Education, Director, Graduate Programs, Macdonald Professor of Education*

Elton Crandall Bockus, B.A. (Bishop's), M.A. (McGill) — *Associate Professor of Education, Coordinator, One-Year Secondary Program*

Real Bouliannne, B.A. (SGWU), M.A. (Ottawa), Ph.D. (McGill) — *Associate Professor of Education, Director, College Level Programs*

Jon G. Bradley, B.A., M.A. (McGill) — *Lecturer in Education*

Donald A. Burgess, B.Sc., M.A. (Durham), F.R.G.S. — *Associate Professor of Education, Associate Dean*

Mildred L. Burns, B.Sc. (Nebraska), Ph.D. (Stanford) — *Associate Professor of Education*

Peter G. Burpee, B.Sc. (McGill) — *Assistant Professor of Education*

Magdelhayne Buteau, B.A., B.Ed., M.A., Lic.Sc.Soc. (Mtl.), Lic.Ped. (Mtl.), Ph.D. (McGill) — *Associate Professor of Education, Chairman, Department of Education in Second Languages*

Lynn Butler, B.Ed., M.Ed., McGill — *Lecturer in Education*

Margaret Cagney, B.S. (D'Youville), M.Ed. (SUNY) — *Assistant Professor of Education*

Nancy Carlman, B.A. (Rochester), M.A. (Wesleyan) — *Assistant Professor of Education*

Glenn F. Cartwright, B.A. (SGWU), M.A. (McGill) Ph.D. (Alta.) — *Assistant Professor of Education*

Wade Chambers — *Honorary Assistant Professor of Education*

John Chomay, B.Sc. (P.E.), (McGill), M.A. (Minn.) — *Associate Professor of Education*

Nicholas G. Coccalis, M.A. (Aberdeen), B.Ed., M.Ed., Ph.D. (Alberta) — *Assistant Professor of Education*

Roger B. Cook, B.S. (Frostburg), M.M. (W. Virginia) — *Assistant Professor of Education*

John M. Cram, B.A., B.Ed. (Alberta), M.Ed. (U.N.B.), Ed.D. (U.B.C.)
Associate Professor of Education

Ann Creaghan, B.A. (Marymount Col.), B.Ed. (Mtl.), M.A. (Columbia)
Associate Professor of Education

Heather Davis, Cert. in Ed. (Bristol), Adv.Dip.Prim.Ed. (Cambridge)
Assistant Professor of Education

Patrick Dias, B.A., M.A. (Karachi), B.Ed. (Mtl.) *Associate Professor of Education*

J. Leo Dowd, B.A. (Thomas More), B.Ed., M.A. (Mtl.), M.Ed. (McGill)
Associate Professor of Education

Florent Dumont, A.B. (Columbia College, N.Y.), M.S. (Southern Conn. College) Ed.D. (U. of Mass.)
Assistant Professor

Ruth M. Duncan, B.A. (Man.), B.Sc. (P.E.), (McGill), Associate of University of London, M.A. (Minnesota) *Associate Professor of Education, Chairman, Department of Elementary Education*

Reginald Edwards, B.Sc. (London), M.Ed. (Manchester)
Professor of Education (Sabbatical 1973-4)

Winston G. Emery, B.Ed., M.A.(Ed.), (McGill) *Assistant Professor of Education*

Wolfgang J. Floch, B.A. (U.B.C.), M.Ed., Ed.D. (Tor.), *Associate Professor of Education*

Pearl Francoeur, B.Sc. (SGWU), M.Sc. (McGill) *Assistant Professor of Education*

Thomas A. Francoeur, B.A. (Mtl.), M.A. (Ottawa), D.Ed. (Mtl.), Dipl.Past.Theol. (Lumen Vitae, Brussels) *Associate Professor of Education, Chairman, Department of Catholic Studies*

May B. Frith, B.A. (London), M.A. (Columbia) *Associate Professor of Education (on leave)*

J. Robert Gardner, B.Ed. (McGill), M.Ed. (Boston) *Assistant Professor of Education*

George L. Geis, B.A., M.A., Ph.D. (Columbia) *Associate Professor of Education, Associate Professor, Centre for Learning and Development*

Margaret Gillett, B.A. (Sydney), M.A. (Russell Sage), Ed.D. (Columbia) *Professor of Education*

Helen Vasos-Gougeon, B.A. (Marianopolis Col.), B.Ed. (Mtl.), M.A. (Ottawa)
Assistant Professor of Education

John B. Gradwell, B.A., M.A. (San Francisco State), Ph.D. (Iowa)
Associate Professor of Education

Frank P. Greene, B.A., M.A., Ph.D. (Mich.)
Associate Professor of Education, Director, Reading Centre

Michael C. Greenisen, B.S.(Ed.) (Northern Illinois), M.A. (Michigan State)
Assistant Professor of Education

C. Wayne Hall, M.A. (Bishop's), F.C.C.T. *Professor of Education, Dean*

John Hamwood, QLD. (Australia), Ph.D. (Toronto) *Assistant Professor of Education*

John K. Harley, M.A. (St. Andrews), Ed.M., Ed.D. (Harvard) *Associate Professor of Education*

Justine Harris, B.A. (Swarthmore Col.), M.Ed., Ed.D. (U.B.C.)
Assistant Professor of Education, Chairman, Department of Counsellor Education

Lorna H. Haworth, B.A. (SGWU), M.A. (McGill) *Assistant Professor of Education (on leave)*

E. Paddy Hearsey, Dip. in Ed. (Southampton), M.A. (SGWU) *Assistant Professor of Education*

Norman Henchey, B.A. (Loyola), B.Ed. (Mtl.), Lic.Ped. (Mtl.), Ph.D. (McGill)
Associate Professor of Education

The Rev. John P. Hilton, S.T.L. (Mtl.), M.A. (Cath. U. of America, Washington)
Associate Professor of Education, Associate Dean

Geoffrey Brian Isherwood, B.S. (Tufts), M.Ed. (U. of Del.), Ed.D. (Rutgers)
Assistant Professor of Education

Annie Elizabeth Jacques, Associate of the University of London
Associate Professor of Education, Chairman, Department of Education in Art

J. Keith Jobling, B.A. (Leeds), M.A. (McGill), Ph.D. (Ottawa)
Associate Professor of Education, Chairman, Department of Social Foundations of Education

Robert Jones, B.A., M.A. (SGWU), Bac.Ped. (Mtl.) *Assistant Professor of Education*

FACULTY OF EDUCATION

Vassilis Klissouras, Dip. (Athens), B.Sc., M.Sc., D.P.E. (Springfield)
Associate Professor of Education, Assistant Professor of Physiology (Fac. of Medicine)
(Sabbatical)

Peter C. Landry, B.Eng. (McGill), M.A. (Columbia), M.Sc. (McGill)
Associate Professor of Education, Honorary Lecturer, Department of Physics

Robert Lavers, B.A. (Bishop's), M.Sc., Ph.D. (McGill) *Assistant Professor of Education*

Robert Lavery, B.A. (Moncton), B.Ed., Lic.Ped. (Mtl.)
Associate Professor of Education, Chairman, Department of Educational Administration

William Lawlor, B.Comm. (Loyola), B.Ed. (Mtl.), M.A., Ph.D. (Ottawa)
Associate Professor of Education

Hugh M. Leard, B.A., B.Ed. (Sask.), M.A. (Minn.), Ed.D. (Arizona State)
Associate Professor of Education

John P. Lipkin, B.A. (Gettysburg), M.A.T. (Brown), Ph.D. (Mich.)
Associate Professor of Education

Jan Lobelle, Lic.Sc.Ec. (Ghent), M.A. (Middlebury) *Associate Professor of Education*

Enid Lofthouse, B.A. (Sask.), B.Ed. (Alta.), M.T.M. (SGWU) *Associate Professor of Education*

Barry Lucas, B.A. (UBC), M.Ed. (W. Washington), Ph.D. (Mich.)
Assistant Professor of Education

Christine Lucas *Assistant Professor of Education*

A. Daisy MacNeil, B.A. (U.B.C.), M.A. (Columbia), B.D. (McGill)
Associate Professor of Education

A. Kennedy Maconochie, M.A. (Edin.), F.R.S.G.S. *Associate Professor of Education*

Maisie MacRae, B.A. (SGWU), M.A. (McGill) *Assistant Professor of Education*

George Mager, A.B. (Franklin & Marshall) Ed.M., Ed.D. (Harvard)
Assistant Professor of Education

Roger P. Magnuson, B.A., M.A., Ph.D. (Mich.) *Associate Professor of Education*

Daniel Marisi, B.Ed., B.A., M.Sc. (Sask.), Ph.D. (California) *Assistant Professor of Education*

Theodore J. Maroun, B.S. (S.U.N.Y. Potsdam), M.S. (Canisius), M.Ed. (S.U.N.Y. Buffalo), Ed.D. (Indiana U.) *Associate Professor of Education*

L. Elaine McDonald, B.Mus. (Sam Houston State), M.A. (Columbia)
Associate Professor of Education, Chairman, Department of Education in Music

Gordon W.E. McElroy, B.A. (Queen's), M.A. (McGill)
Associate Professor of Education, Director of Summer Session,
Associate Director, McGill Centre for Continuing Education

Eileen McIlwaine, C.N.D., B.A., B.Ed. (Marianopolis), M.A. (Mtl.), Ph.D. (Ottawa)
Associate Professor of Education

Gerald H. McKay, B.A., M.A. (Dalhousie), M.A. (Yale), Ed.D. (Harvard) *Professor of Education*

Shirley W.C. McNicol, B.A. (McGill), M.A. (Columbia), Associate of the University of London
Associate Professor of Education

Dominic Modafferi, B.A. (Mtl.), M.A. (Wesleyan) *Associate Professor of Education*

Harry D. Morrison, B.A., M.Ed. (Bishop's)
Associate Professor of Education, Coordinator Undergraduate Degree Programs

Graham Neil, B.Ed.(P.E.), M.A. (McGill), Ph.D. (Oregon) *Assistant Professor of Education*

Stanley Nemiroff, B.Sc., M.A. (McGill) *Assistant Professor of Education*

Dorothy A. Nichol, B.Sc.(P.E.), (McGill), M.Sc.(P.E.), (Syracuse)
Associate Professor of Education

Martin O'Hara, B.A. (Thomas More), B.Ed. (Marianopolis), M.A. (Mtl.)
Associate Professor of Education, Chairman, Department of Education in English

Clifford Papke, B.A. (Mtl.), A.O.C.A. *Assistant Professor of Education*

James Park, B.Ed., M.Ed., Ph.D. (Alberta) *Assistant Professor of Education*

Charles E. Pascal, B.A., M.A., Ph.D. (Michigan) *Assistant Professor of Education,*
Assistant Professor, Centre for Learning & Development

Eigil Pedersen, B.A. (SGWU), M.A. (McGill), Ed.D. (Harvard)
Professor of Education, Vice-Principal (Academic)

Francis Pinto, B.A. (Madras), LL.B., M.A. (Bombay), L.Ph. (Gregorian Univ.)
Associate Professor of Education

Alwynn Pollard, B.Ed., M.A. (U.B.C.) *Lecturer in Education*

Robert N. Pollard, B.A., M.Ed. (U.B.C.)
Associate Professor of Education, Director of Educational Media Centre

André Provencher, Bacc. ès A. (Mtl.), Lic. ès Lett. (Lille) *Associate Professor of Education*

Salvatore Pupo, B.Ed. (Duquesne), M.Sc. (Notre Dame)
Associate Professor of Education (Sabbatical)

H. Oscar Purdy, B.A., M.A. (Acadia), M.A. (Bowdoin)
Associate Professor of Education, Chairman, Dept. of Education in Mathematics & Science

Peter Quily, B.Ed. (Alberta), M.Ed. (Oregon), Dip. Vocational Guidance (Alberta)
Assistant Professor of Education

Socrates Rapagna, B.A. (Don Bosco), B.Ph. (Turin), Lic.Ped. (Mtl.), M.A. (Mtl.)
Associate Professor of Education (on leave of absence)

Gregory D. Reid, B.Ed. (P.E.) (McGill), M.S. (U.C.L.A.) *Lecturer in Education*

Gillian Rejskind, B.A., M.A. (Sask.) *Assistant Professor of Education*

Howard Riggs, B.Ed. (Alta.), M.A. (Minn.) *Assistant Professor of Education*

Douglas Riley, B.Sc., M.Sc. (Springfield) *Assistant Professor of Education*

William Ryan, B.A. (St. Marys), B.Ed., M.A. (Mtl.), M.A. (McGill)
Associate Professor of Education

V. Ann Scott, B.S. (Purdue), M.S., Ed.S. (Indiana) *Assistant Professor of Education*

Gertrude Scott, B.A. (Marianopolis), B.Ed., Lic.Ped. (Mtl.) *Assistant Professor of Education*

William Edward Searles, B.Sc. (SGWU), M.Sc. (New Hampshire)
Associate Professor of Education (Sabbatical)

Hermione Shantz, B.A., M.A., Ph.D. (Michigan State) *Assistant Professor of Education*

Bruce M. Shore, B.Sc., M.A. (McGill), Ph.D. (Calgary)
Assistant Professor, Centre for Learning and Development, Assistant Professor of Education

David C. Smith, B.Ed., M.A. (McGill), Ph.D. (London)
Associate Professor of Education, Chairman, Department of Education in Social Sciences

Dorothy Sokolyk, B.A. (SGWU), M.A. (Columbia) *Associate Professor of Education*

Franga Stinson, B.A. (SGWU), M.A. (McGill), Ed.D. (Syracuse), Associate of the University of London *Associate Professor of Education, Coordinator of One-Year Elementary Program*

R. Lynn Studham, N.D.D., C.S.G.A., C.S.A. *Assistant Professor of Education*

Howard A. Stutt, B.A. (Queen's), B.Ed., M.Ed. (Mtl.)
Associate Professor of Education, Chairman, Department of Educational Psychology and Sociology

Ronald H. Tali, A.B., M.A., Ph.D. (The University of Michigan)
Associate Professor of Education

William Martin Talley, A.B. (Kentuky Christian College), A.B. (Morehead State), M.A., Ph.D. (Ohio State) *Associate Professor of Education*

Georges Terroux, B.A. (Loyola), M.A. (Essex), Ph.D. (Montreal)
Associate Professor of Education

Catherine Waddell, B.A. (SGWU), Dip.Ed. (Glasgow) *Assistant Professor of Education*

Margaret C. Walker, B.P.H.E. (Toronto), M.A. (Iowa) *Assistant Professor of Education*

Albert E. Wall, B.Ed.(P.E.), M.A. (McGill) *Assistant Professor of Education (Sabbatical)*

Jennifer A.T. Wall, London Univ. Inst. of Ed. Cert. (Chelsea Coll. of P.E.), Art of Movement Studio Cert., M.A. (McGill) *Assistant Professor of Education*

James Watling, A.T.C. (Leeds) *Associate Professor of Education*

Elisabeth L. Watters, B.A. (McGill), M.Ed. (Boston) *Assistant Professor of Education*

FACULTY OF EDUCATION

Boyd E. White, B.A. (SGWU), M.F.A. (Inst. Allende of U. of Guanajuato)
Assistant Professor of Education

Joan White, B.A. (Hons.) Dublin, C.E.S. (Aix-en-Provence), M.A. (McGill)
Assistant Professor of Education

Richard Whitwell, B.Sc. (London), M.A. (McGill), F.C.C.T. *Associate Professor of Education*

Robert E. Wilkinson, B.Sc. (P.E.), M.A. (Columbia), D.P.E. (Springfield)
Professor of Education, Chairman, Department of Physical Education

Lila F. Wolfe, B.Sc. (McGill)
Lecturer in Education

F. Jack Young, B.Ed. (U.B.C.), M.A. (Kent State, Ohio) *Associate Professor of Education*

John E.M. Young, B.A. (McMaster), B.Ed., M.Ed. (Sask.), Ph.D. (Toronto)
Professor of Education

2 PROGRAMS OFFERED

FULL-TIME STUDENTS

The Faculty of Education offers a wide variety of programs which are designed to prepare students for professional careers in the fields of elementary and secondary education. These include three-year programs for CEGEP graduates which lead to an undergraduate degree (Bachelor of Education), one-year programs for University graduates leading to the McGill Diploma in Education, and, on a limited basis, one-year certificate programs for CEGEP graduates.

DEGREE PROGRAMS OFFERED

MAJOR PROGRAMS leading to teacher certification at both the elementary and secondary school levels:

ART EDUCATION (see page 15)
PHYSICAL EDUCATION (see page 16)
RELIGIOUS STUDIES (Catholic or Protestant) (see page 17)

MAJOR PROGRAMS leading to teacher certification at the secondary school level (one subject):

BIOLOGY, CHEMISTRY, ENGLISH, ENGLISH OR FRENCH (Second Language), GEOGRAPHY, HISTORY, HOME ECONOMICS, LATIN, MATHEMATICS, MODERN LANGUAGES (GERMAN, ITALIAN OR SPANISH), AND PHYSICS. (see page 18).

MAJOR PROGRAM leading to certification at the elementary school level:

FRENCH-SECOND LANGUAGE (see page 19)

GENERAL PROGRAMS leading to teacher certification at the secondary school level (two subjects):

BIOLOGY, CHEMISTRY, ENGLISH, ENGLISH OR FRENCH (second language), GEOGRAPHY, HISTORY, LATIN, MATHEMATICS, MODERN LANGUAGES (GERMAN, ITALIAN OR SPANISH), PHYSICAL EDUCATION, PHYSICS AND RELIGIOUS STUDIES (Catholic or Protestant). (see page 19)

GENERAL PROGRAMS leading to teacher certification at pre-school and elementary school levels:

PRE-SCHOOL (children of ages 3-5) (see page 20)
EARLY CHILDHOOD (children of ages 5-8) (see page 21)
LATER CHILDHOOD (children of ages 8-11) (see page 22)

DIPLOMA PROGRAMS OFFERED

DIPLOMA PROGRAMS leading to teacher certification at the elementary, secondary, or combined elementary-secondary school levels:

Elementary Level

EARLY CHILDHOOD (ages 5-8) (see page 24)
LATER CHILDHOOD (ages 8-11) (see page 24)
FRENCH (SECOND LANGUAGE) (ages 5-11) (see page 25)

Secondary Level (one or two teaching areas)

Preparation in one or two of the following teaching areas:
ART, BIOLOGY, CHEMISTRY, ENGLISH, GENERAL SCIENCE, GEOGRAPHY, HISTORY, MATHEMATICS, PHYSICS, RELIGION (Catholic or Protestant), SECOND LANGUAGES (ENGLISH, FRENCH, GERMAN, ITALIAN, LATIN OR SPANISH), SOCIAL STUDIES. (see page 23)

Secondary Level (one teaching area only)

HOME ECONOMICS, TECHNICAL-VOCATIONAL or BUSINESS EDUCATION (see page 24)

Combined Elementary-Secondary Levels

MUSIC (see page 24)

NOTE: In conjunction with the School of Physical and Occupational Therapy, a one-year program leading to the McGill Diploma in Education is offered to qualified Physical Therapists who aspire to a teaching career in a recognized school of Physical Therapy. For further information on admissions, program and course requirements, write to The School of Physical and Occupational Therapy, 3654 Drummond Street, Montreal 109.

CERTIFICATE PROGRAMS OFFERED

Programs leading to certification at the elementary or secondary school levels:

Elementary Level

EARLY CHILDHOOD (to terminate June 1974) (see page 24)
LATER CHILDHOOD (to terminate June 1974) (see page 24)
FRENCH (SECOND LANGUAGE) (see page 25)

Secondary Level

TECHNICAL-VOCATIONAL SUBJECTS (see page 24)
BUSINESS EDUCATION (see page 24)

PART-TIME STUDENTS

During the summer months as well as in the evenings of the fall and spring terms the Faculty of Education offers a selected number of programs designed for certified teachers who are interested in pursuing further studies in elementary education or who wish to prepare for a career in the areas of Technical-Vocational* and Business Education*.

Candidates admitted to studies in elementary education may elect to enrol in either a 90 credit program leading to a Bachelor of Education degree or a 30 credit program leading to a Teaching Diploma issued by the Province of Quebec. All of these programs meet provincial standards in regard to the up-grading of teacher classification (Regulation # 5).

For general information on courses, admission procedures, fees, etc. write to:

Centre for Continuing Education
772 Sherbrooke Street West
Montreal, Quebec

— OR —

McGill Summer Session
P.O. Box 6070,
Montreal, Quebec 110.

*Certification not a pre-requisite for these programs.

DEGREE PROGRAMS

Bachelor of Education degree program with concentration in:

EARLY CHILDHOOD EDUCATION
READING
SPECIAL EDUCATION
EDUCATIONAL MEDIA

DIPLOMA PROGRAMS

Diploma programs, derived from the concentrations offered in the degree programs (above):

KINDERGARTEN

— includes courses in CHILD DEVELOPMENT, ART, MUSIC, CREATIVE MOVEMENT AND DRAMATICS, TEACHING METHODS AND MATERIALS for children of the 5-8 age group.

READING

— designed to train practicing teachers in more effective developmental and corrective teaching of reading.

NOTE: for detailed information, write to Prof. Frank Greene, Faculty of Education, 3700 McTavish Street, MONTREAL 112, Quebec.

SPECIAL EDUCATION

— designed for teachers wishing to qualify for work with children who have learning and/or behaviour problems. Useful for any teacher interested in problems of learning, their diagnosis and assessment.

NOTE: For detailed information, write to Prof. H. Stutt, Faculty of Education, 3700 McTavish Street, MONTREAL 112, Quebec.

EDUCATIONAL MEDIA

– intended to train teachers in more effective classroom communication and to prepare school or district media specialists.

NOTE: For detailed information, write to Director, Educational Media Centre, Faculty of Education, 3700 McTavish Street, MONTREAL 112, Quebec.

TECHNICAL-VOCATIONAL EDUCATION

– includes courses in basic educational theory and practice; concentrations in WOODWORK, METALWORK, TECHNICAL DRAWING, AUTOMOTIVE TECHNOLOGY, ELECTRICITY AND ELECTRONICS TECHNOLOGY, ETC.

BUSINESS EDUCATION

– in addition to courses in basic educational theory and practice, includes concentrations in ACCOUNTING, DATA PROCESSING, TYPEWRITING, BUSINESS MACHINES, SHORTHAND, BUSINESS MATHEMATICS, ETC.

NOTE: For detailed information, write to Prof. F. Jack Young, Faculty of Education, 3700 McTavish Street, MONTREAL 112, Quebec.

GRADUATE PROGRAMS

Through the Faculty of Graduate Studies, the University offers graduate degrees in Education – the Master of Arts, the Master of Education, and the Doctor of Education. Any of these programs may be taken through full-time study or through part-time study in the evenings and Saturday mornings, and/or during the six week Summer Session.

The following Masters' degrees are at present offered in the Faculty of Education:

M.A. degrees in
- Comparative Education
- Counsellor Education
- Educational Administration
- Educational Psychology
- History of Education
- Philosophy of Education
- Physical Education.

M.Ed. degrees in
- Counsellor Education
- Educational Administration
- Special Education
- Teaching of Reading
- Teaching Subjects.

Only one doctoral program is at present available, the Doctor of Education in Counsellor Education. It is, however, possible for well qualified candidates to enter special doctoral programs in education under the sponsorship of the Faculty of Graduate Studies and Research.

For complete detail on programs, admission requirements, fees, etc. consult the calendar of the Faculty of Graduate Studies and Research which may be obtained by a written request to Prof. L.B. Birch, Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec.

PROGRAMS UNDER DEVELOPMENT

Programs are now being developed in the areas of Collegial Education and Jewish Studies. The former to meet the expanding needs of the Quebec CEGEPS, the latter for those who aspire to a teaching position in Jewish Day Schools. Inquiries may be addressed to Associate Dean, (Academic), Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec.

3 PROGRAM PROFILES

DEGREE PROGRAMS

All the programs leading to the Bachelor of Education degree are of recent origin (introduced in 1971) and are designed primarily to accommodate the graduates of Quebec's new and still developing Colleges (CEGEP's) who aspire to a career in the teaching profession.

While requiring an academic and professional concentration which is essential for the candidate's basic preparation as a teacher in a given subject area and/or level of education, these programs also provide for the selection of a broad range of optional courses. This flexibility is intended to satisfy the diverse needs and interests of each student as these are perceived by the Faculty (staff adviser) or by the students themselves.

Each program, therefore, requires the completion of at least ninety (90) course credits in academic and professional studies chosen in consultation with a staff adviser (see 1 below) according to the following general pattern.

1) A minimum of thirty (30) course credits in an **ACADEMIC CONCENTRATION** (see 2 below);

2) A minimum of thirty (30) course credits in two semesters of **PROFESSIONAL CONCENTRATION** (see 3 below);

3) A maximum of fifteen (15) course credits which are determined by **DEPARTMENTAL SELECTION** (see 4 below);

4) A maximum of fifteen (15) course credits which each candidate may choose as **FREE ELECTIVES** (see 5 below).

GUIDELINES FOR COURSE SELECTIONS

1) ADVISERS

Before registration, each first year student will be introduced to a staff adviser with whom he will consult concerning program and course selection. Second and third year students will have an opportunity to make their selections in the month of April preceding registration in September. All new students (whatever year) will have the opportunity for pre-registration counselling (See Calendar dates). At registration, each student must present a copy of the **Study Plan Form** which was completed and signed by the staff adviser at the pre-registration meeting.

2) ACADEMIC CONCENTRATION

Academic concentration refers to those courses which provide content material related to the school subject(s) for which the teacher candidate is preparing, for example, English Literature, Canadian History, Chemistry, etc. . .

For those who select a **MAJOR PROGRAM**, all courses of the **ACADEMIC CONCENTRATION** must be in a single subject area (for example, Geography) or directly related to the subject (for example, Mathematics for Physics).

For candidates who select a **GENERAL PROGRAM** (SECONDARY EDUCATION), all courses of the **ACADEMIC CONCENTRATION** (36 credits in this program) must be equally divided between **OPTION I** (first subject) and **OPTION II** (second subject).

For candidates who select a program in **ELEMENTARY EDUCATION**, the courses of the **ACADEMIC CONCENTRATION** must be selected from the following subject areas taught in the elementary school: Art, English, French, Mathematics, Music, Physical Education, Science, Social Studies, and Religion. These five subject areas are selected as **OPTIONS** in the following pattern:

OPTION I which requires a total of twelve (12) course credits continued throughout the program;

OPTION II which requires a total of nine (9) course credits continued throughout the program;

OPTION III – three (3) course credits;

OPTION IV – three (3) course credits;

OPTION V – three (3) course credits.

NOTE: For the selection of available courses in the **ACADEMIC CONCENTRATION**, students are referred to the Calendars and timetables of the Faculties of Arts, Science, Music and Religious Studies. For academic courses offered by the Faculty of Education see Section 7 of this booklet.

3) PROFESSIONAL CONCENTRATION

Professional concentration refers to those courses which deal with educational theory and practice. These courses are grouped together in two semesters which are known as the **BASIC EDUCATION SEMESTER (BES)** and the **FIELD EXPERIENCE SEMESTER (FES)**. During these semesters a student may not enrol in an academic course without the approval of the Associate Dean (Academic).*

The courses offered during the **BES** or **FES** fall into three separate categories:

a) a general theory course which is required of all students (448-305 — INTEGRATED STUDY OF TEACHING & LEARNING):

b) field experience and curriculum courses which are specific to the teaching area and/or level of each candidate;

c) courses known as **EDUCATION ELECTIVES**. These are courses which offer the opportunity for study in greater depth of one or another aspect of the educational theory touched upon in the general course. For available selections, see **EDUCATION ELECTIVES** below.

*Students who already possess a Quebec Teaching Permit (or equivalent qualification) are exempt from this requirement.

4) DEPARTMENTAL COURSE SELECTION

Departmental course selection refers to those courses which are determined for each student or group of students by the Department responsible for the teaching area and/or level for which each student is preparing (example: for English, Secondary level, Department of Education in English; for elementary schools, early childhood, Department of Elementary Education, etc.). Although the courses chosen may be either academic or professional in content, they are not included among the requirements of the education semesters or the academic concentration. Thereby, the Department is able to supplement basic program requirements with others judged most likely to lead to a well-balanced profile relative to both the individual needs of each student and the teaching competencies demanded by the profession.

5) FREE ELECTIVE

Free elective refers to those courses, either academic or professional, which may be chosen by the student in order to fulfill perceived needs or to pursue areas of scholarly interest. Thus, the student is free to enrol in any course offered by the University within the limits established by timetables, pre-requisites, faculty jurisdictions, etc.

Before making selections, students are urged to discuss the matter with Departmental advisers or other competent counsellors. Although not required, it is recommended that the student use the opportunity provided by these electives to plan a coherent package of course selections which complement the basic program according to individual needs.

SUGGESTIONS

a) to prepare for graduate study in a subject discipline, additional courses in the **ACADEMIC CONCENTRATION**;

b) to prepare for graduate study in Education, a group of courses from a selected area (for example, Educational Psychology, Foundations of Education);

c) to support the minimum requirements of a General Secondary program, a choice of additional academic and curriculum courses in the areas of concentration;

d) to supplement preparation in elementary education, appropriate courses offered in Psychology, curriculum, or related academics;

e) to provide background for those who intend to teach in Catholic schools, selected courses in Catholic studies;

f) to enhance basic teaching techniques, courses available in Educational Media.

For a full range of course offerings which might serve this purpose, consult the announcements of other faculties, especially those of Arts and Science. Courses available as **FREE ELECTIVES** in the Faculty of Education may be selected from the List of Course Offerings (section 7) in consultation with a Faculty adviser.

EDUCATION ELECTIVES

The courses listed below are those education courses which are available to the student during the **Basic Education** or **Field Experience Semesters.** If scheduling permits, they are otherwise available as courses which the student may choose as **FREE ELECTIVES.**

Before making a selection, the student is urged to consult a staff adviser. This consultation should not take place until the student has decided on an area and/or level of teaching concentration (program profile).

Although the electives are specified for first, second and third years, crossover selections are permitted if approved by the Associate Dean (Academic).

Because of enrolment limits, first selections are not guaranteed. When registering, the student should be prepared to make a second or third choice.

FIRST YEAR ELECTIVES*

413-404	THE RISE OF PUBLIC EDUCATION IN THE 19TH CENTURY
413-408	HUMAN VALUES AND EDUCATION
414-201	NATURE AND CONDITIONS OF SCHOOL LEARNING
414-203	EDUCATION AND SOCIETY *pre-requisite: 414-205*
414-208	THE DEVELOPMENT OF PERSONALITY AND SOCIAL BEHAVIOUR IN THE SCHOOL-AGE CHILD
414-249	CREATIVITY AND ITS CULTIVATION
415-398	PHILOSOPHY OF CATHOLIC EDUCATION

SECOND YEAR ELECTIVES*

411-394	ADMINISTRATION OF EDUCATION IN QUEBEC
412-304	GROUP PROCESSES
413-404	THE RISE OF PUBLIC EDUCATION IN THE 19TH CENTURY
413-408	HUMAN VALUES AND EDUCATION
414-201	NATURE AND CONDITIONS OF SCHOOL LEARNING
414-203	EDUCATION AND SOCIETY *pre-requisite: 414-205*
414-205	SOCIOLOGY OF EDUCATION
414-304	MEASUREMENT AND EVALUATION IN EDUCATION
414-308	SOCIOLOGY OF THE CLASSROOM
414-377	ADOLESCENCE AND THE PROCESS OF EDUCATION
414-394	COGNITIVE DEVELOPMENT IN THE SCHOOL-AGE CHILD AND ADOLESCENT (not open to those who have taken 414-396) *pre-requisites: 414-340; 414-341*
414-396	THE NATURE OF INTELLIGENCE (not open to those who have taken 414-394) *pre-requisites: 414-340; 414-341*
415-398	THE PHILOSOPHY OF CATHOLIC EDUCATION
415-399	CATHOLIC SCHOOL OF THE FUTURE
431-301	LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING *pre-requisite: permission of instructor*
432-204	INTRODUCTION TO EDUCATIONAL MEDIA

THIRD YEAR ELECTIVES*

411-394	ADMINISTRATION OF EDUCATION IN QUEBEC
412-304	GROUP PROCESSES
413-404	THE RISE OF PUBLIC EDUCATION IN THE 19TH CENTURY
413-405	THE CRITICAL SPIRIT AND EDUCATION
413-406	INTRODUCTION TO COMPARATIVE EDUCATION
413-408	HUMAN VALUES AND EDUCATION
414-304	MEASUREMENT AND EVALUATION IN EDUCATION
414-308	SOCIOLOGY OF THE CLASSROOM
414-340	EDUCATION OF EXCEPTIONAL CHILDREN
414-341	GENERAL METHODS IN SPECIAL EDUCATION
415-398	PHILOSOPHY OF CATHOLIC EDUCATION
415-399	CATHOLIC SCHOOL OF THE FUTURE

427-343 ADVANCED READING INSTRUCTION – ELEMENTARY SCHOOL
pre-requisite: 427-228 or 427-238

430-333 COMPARATIVE SOCIAL STUDIES
pre-requisite: 430-332

432-404 CONTEMPORARY DEVELOPMENTS IN EDUCATIONAL MEDIA
pre-requisite: 432-204

*For detailed course descriptions see **Course Offerings**, (section 7).

MAJOR PROGRAMS

Candidates admitted to Major programs must meet the following course requirements:

30 credits in a single academic concentration from courses chosen in consultation with a Departmental adviser;

33 credits in a professional concentration in which are included:

9 credits in Basic Education (448-204 and 448-305)

15 credits in Field Experience and Curriculum courses specific to the area of academic concentration;

9 credits chosen from list of Education Electives.

12 credits determined by the Departmental adviser (to complement the academic or professional concentration);

15 credits chosen as FREE ELECTIVES.

ART EDUCATION (ELEMENTARY – SECONDARY)
(For course selections, see Guidelines)

FIRST YEAR

ACADEMIC CONCENTRATION 18 credits

Student must take 426-204A DRAWING, 426-296A BASIC DESIGN. Other courses (12 credits) may be selected from the following 3 credit courses:

205B PAINTING II (See Note 2 below)
206A or B INTRODUCTION TO GRAPHICS
207B STUDY IN FURTHER GRAPHIC MEDIA
208A or B INTRODUCTION TO CERAMICS
209B CERAMIC II
297B DESIGN II
398A EARLY CANADIAN ART HISTORY
399B CANADIAN ART

DEPARTMENTAL COURSE SELECTIONS 6 credits

In the first semester student must take 448-204. In the second semester, 427-305 or 432-204 or another course approved by the Department.

FREE ELECTIVES 6 credits

SECOND YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION 12 credits

Student may choose to pursue **two** areas of concentration

PAINTING (426-304 and 305A)
or
GRAPHICS (426-394 and 395A)
or
DESIGN (426-396A and 397A)
or
CERAMICS (426-300A and 309A)

FREE ELECTIVE 3 credits

SECOND YEAR – SECOND SEMESTER (BES)

448-305B INTEGRATED STUDY OF TEACHING & LEARNING 6 credits
435-245B FIELD EXPERIENCE – ELEMENTARY & SECONDARY 3 credits
CURRICULUM COURSE (426-322) 3 credits

FACULTY OF EDUCATION

EDUCATION ELECTIVE — 3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-496 FIELD EXPERIENCE – ELEMENTARY & SECONDARY — 9 credits

EDUCATION ELECTIVES — 6 credits

THIRD YEAR – SECOND SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 9 credits
Student must take two courses (6 credits) in one of the two areas of academic concentration selected in second year (See Note 1 below)

FREE ELECTIVES — 6 credits

NOTE 1 – Students are required to present an exhibition of their work at the end of the third year.

NOTE 2 – Sketching School – A ten day resident sketching school (Labour Day week-end through early September) is offered to students who have completed Painting II (426-205). This will be considered an optional part of Painting V (426-404) but may be taken in the first summer. Students will be expected to pay transportation, room and board (cost will be kept to a minimum).

PHYSICAL EDUCATION (ELEMENTARY – SECONDARY)
(For course selections, see Guidelines)

FIRST YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION (See note 2 below) — 12 credits
Students must take 434-205, 207, 241, and either 434-204 or 291 (for details, see page 59)

DEPARTMENTAL COURSE SELECTION — 3 credits
Students must take 448-204A. Introduction to Education.

FIRST YEAR – SECOND SEMESTER (BES)

448-305 INTEGRATED STUDY OF TEACHING & LEARNING — 6 credits
435-245 DIRECTED OBSERVATION – ELEMENTARY — 3 credits
434-242 ELEMENTARY P.E. METHODS — 3 credits

EDUCATION ELECTIVE — 3 credits

SECOND YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 6 credits
Students must take 552-201 and 434-301.

FREE ELECTIVES — 9 credits

SECOND YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 6 credits
Students must take 434-391B and 434-302.

DEPARTMENTAL COURSE SELECTION — 3 credits

FREE ELECTIVES — 6 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-496A FIELD EXPERIENCE ELEMENTARY AND SECONDARY — 9 credits

EDUCATION ELECTIVES — 6 credits

THIRD YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 6 credits
Students must take 434-402 and 434-492.

DEPARTMENTAL COURSE SELECTIONS — 9 credits
Students must take three of 434-493, 494, 495, 496 and 497.

NOTE 1. Costume & Equipment: All students pursuing a major program in Physical Education are required to wear a costume appropriate to the activity as approved by the instructor. Students are also responsible for providing some items of personal sports equipment such as skis, skates, tennis racquets, etc.

NOTE 2. All students in the physical education major program must complete a minimum of 18 semester credits in activity courses before graduation. Nine of these credits are required, the remaining nine credits are to be chosen from the optional list. Registration in an advanced activity course requires at least a "C" grade in the introductory course and permission of the instructor. Not all elective activity courses will be offered each year. It should be possible, however, for a candidate to elect for any of these options sometime during the three year program. (see page 60).

RELIGIOUS EDUCATION – CATHOLIC (ELEMENTARY – SECONDARY)

(For course selections, see Guidelines)

FIRST YEAR

ACADEMIC CONCENTRATION — 18 credits
Recommended courses are 415-200, 204, 290, 206, 207 and 208 (for details, see Course Offerings, section 7).

DEPARTMENTAL COURSE SELECTIONS — 6 credits
Students must take 448-204 in the first semester. In the second semester, 427-305 or 432-204 unless another course is approved by the Department.

FREE ELECTIVES — 6 credits

SECOND YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 12 credits
Recommended courses are 415-391, 394, 395 and 396. (See Course Offerings for details).

FREE ELECTIVE — 3 credits

SECOND YEAR – SECOND SEMESTER (BES)

448-305 INTEGRATED STUDY OF TEACHING & LEARNING — 6 credits
435-495 DIRECTED OBSERVATION — 3 credits
CURRICULUM COURSE (415-341 or 392) — 3 credits
EDUCATION ELECTIVE — 3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-496 FIELD EXPERIENCE – ELEMENTARY & SECONDARY — 9 credits
EDUCATION ELECTIVES — 6 credits

THIRD YEAR – SECOND SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 9 credits

FREE ELECTIVES — 6 credits

NOTE: Students who prefer to combine a Religious Studies option (Secondary level only) with another subject are referred to p. 19).

RELIGIOUS EDUCATION – PROTESTANT (ELEMENTARY – SECONDARY)

(For course selections, see Guidelines)

FIRST YEAR

ACADEMIC CONCENTRATION (See Note 1 below) — 18 credits
Recommended Courses are 260-E140, 200, 300, 310 and 340 (for details on these and other available courses, see Calendar of Faculty of Religious Studies).

DEPARTMENTAL COURSE SELECTIONS — 6 credits
Students must take 448-204 in the first semester. In the second semester, 427-305 or 432-204 unless another course is approved by Departmental adviser.

FREE ELECTIVES — 6 credits

SECOND YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 12 credits
Recommended courses are 421-301, 260-345, 370 and 440 or other offerings listed among "Related Courses" in the Calendar of the Faculty of Religious Studies.

FREE ELECTIVE — 3 credits

SECOND YEAR – SECOND SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-495	DIRECTED OBSERVATION	3 credits
	CURRICULUM COURSE (421-542 or 572)	3 credits
	EDUCATION ELECTIVE	3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-496	FIELD EXPERIENCE – ELEMENTARY & SECONDARY	9 credits
	EDUCATION ELECTIVES	6 credits

THIRD YEAR – SECOND SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 9 credits
Students will take 412-304 and any other courses approved by Departmental adviser.

FREE ELECTIVES — 6 credits

NOTE 1. Students who choose this option are referred to Prof. D. MacNeill (Room 365) for advice and consultation.
NOTE 2. Those who prefer to combine a Religious Studies option (Secondary level only) with another subject are referred to p. 19).

SECONDARY EDUCATION – MAJOR PROGRAMS*
(For course selections, see Guidelines)

FIRST YEAR

ACADEMIC CONCENTRATION — 18 credits
Courses in the Academic Concentration should be selected from the offerings available in the Faculty of Arts or the Faculty of Science in consultation with a departmental adviser.

DEPARTMENTAL COURSE SELECTIONS — 6 credits
Students must take 448-204 in the first semester. In the second, they may take 427-305 or 432-204 or another course approved by the Department.

FREE ELECTIVES — 6 credits

SECOND YEAR – FIRST SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-375	DIRECTED OBSERVATION – SECONDARY	3 credits
	Curriculum Course (Major Subject)	3 credits
	EDUCATION ELECTIVE	3 credits

SECOND YEAR – SECOND SEMESTER (FES)

435-376	FIELD EXPERIENCE – SECONDARY SCHOOL	9 credits
	EDUCATION ELECTIVES	6 credits

THIRD YEAR

ACADEMIC CONCENTRATION — 18 credits
See Calendar, Faculty of Arts, Faculty of Science.

DEPARTMENTAL COURSE SELECTIONS — 3 credits

FREE ELECTIVES — 9 credits

*For available options, see p. 9.

HOME ECONOMICS

Students who elect to follow a Major program in Home Economics are required to enrol in the courses offered in the School of Food Science for the first four semesters. During that period they are required to complete 60 course credits of which at least 30 must be in the Academic Concentration. Students then enrol for 30 course credits in professional subjects at the Faculty of Education.

THIRD YEAR – FIRST SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-375	DIRECTED OBSERVATION SECONDARY	3 credits
Curriculum Course (Major Subject)		3 credits
EDUCATION ELECTIVE		3 credits

THIRD YEAR – SECOND SEMESTER (FES)

435-376	9 credits
EDUCATION ELECTIVES	6 credits

FRENCH SECOND LANGUAGE (ELEMENTARY)

FIRST YEAR

ACADEMIC CONCENTRATION — 18 credits

To be selected from the following:

126-225D	104-200A	157-200A
126-229D	104-200B	157-203D
126-245D	104-201D	157-226A
126-247D	104-230A	
126-264D	104-241B	
126-275D		

(for details see Calendar, Faculty of Arts)

DEPARTMENTAL COURSE SELECTIONS — 6 credits

Students must take 448-204 in the first semester. In the second, either 427-305 or 432-204 or another course approved by the Department.

FREE ELECTIVES — 6 credits

SECOND YEAR – FIRST SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-375	DIRECTED OBSERVATION – SECONDARY SCHOOL	3 credits
Curriculum Course (431-342)		3 credits
EDUCATION ELECTIVE		3 credits

SECOND YEAR – SECOND SEMESTER (FES)

435-346	FIELD EXPERIENCE – ELEMENTARY SCHOOL	9 credits
EDUCATION ELECTIVES		6 credits

THIRD YEAR

ACADEMIC CONCENTRATION — 12 credits

To be selected from the following:

126-317A	104-321B	157-316A
126-329D	104-410B	157-336B
126-333A	104-425A	157-370D
126-334B		157-406B
126-342D		157-480B
126-345D		
126-442D		

DEPARTMENTAL COURSE SELECTIONS — 9 credits

Student may take three of the following: 431-304, 431-345, 432-205, 432-306, 433-322 or any other course approved by the Department.

FREE ELECTIVES — 9 credits

SECONDARY EDUCATION – GENERAL PROGRAMS*

(For course selections, see Guidelines)

FIRST YEAR

ACADEMIC CONCENTRATION — 18 credits

- Option I (9 credits)
- Option II (9 credits)

*For available options, see p. 9.

DEPARTMENTAL COURSE SELECTIONS — 6 credits
Student must take 448-204 in the first semester. In the second, they may take 427-305 or 432-204 or another course approved by the Department Chairman.

FREE ELECTIVES — 6 credits

SECOND YEAR – FIRST SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-375	DIRECTED OBSERVATION – SECONDARY	6 credits
	Curriculum Course (Option I)	3 credits
	Curriculum Course (Option II)	3 credits

SECOND YEAR – SECOND SEMESTER (FES)

435-376	FIELD EXPERIENCE – SECONDARY SCHOOL	9 credits

EDUCATION ELECTIVES — 6 credits

THIRD YEAR

ACADEMIC CONCENTRATION — 18 credits
– Option I (9 credits)
– Option II (9 credits)

DEPARTMENTAL COURSE SELECTIONS — 3 credits

FREE ELECTIVES — 9 credits

ELEMENTARY EDUCATION – NURSERY & KINDERGARTEN

(For course selections, see Guidelines)

FIRST YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 12 credits
– Option I (6 credits) to be continued in 2nd, 3rd years
– Option II (3 credits) to be continued in 2nd, 3rd years
– Option III (3 credits)
*Students must include Art, Music, & Physical Movement among the options chosen.

DEPARTMENTAL COURSE SELECTIONS — 3 credits
Students must take 448-204 Introduction to Education.

FIRST YEAR – SECOND SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-145	DIRECTED OBSERVATION	3 credits
414-208	THE DEVELOPMENT OF PERSONALITY	3 credits

EDUCATION ELECTIVE — 3 credits

SECOND YEAR – FIRST SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 12 credits
Students must take 427-305, 433-305, 433-322, 417-312 or any other course approved by the Department.

FREE ELECTIVE — 3 credits

SECOND YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 12 credits
– Option I (3 credits) to be continued in 3rd year
– Option II (3 credits) to be continued in 3rd year
– Option IV (3 credits)
– Option V (3 credits)

FREE ELECTIVE — 3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-411	FIELD EXPERIENCE – NURSERY & KINDERGARTEN	6 credits
433-411	PRE-SCHOOL CURRICULUM	3 credits

EDUCATION ELECTIVES — 6 credits

THIRD YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 6 credits
- Option I (3 credits)
- Option II (3 credits)

FREE ELECTIVES — 9 credits

ELEMENTARY EDUCATION – EARLY CHILDHOOD

(For course selections, see Guidelines)

FIRST YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 12 credits
- Option I (6 credits) to be continued in 2nd, 3rd years
- Option II (3 credits) to be continued in 2nd, 3rd years
- Option III (3 credits)

DEPARTMENTAL COURSE SELECTIONS — 3 credits
Students must take 448-204.

FIRST YEAR – SECOND SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-245	DIRECTED OBSERVATION – ELEMENTARY	3 credits
Curriculum Course (427-228 or 428-322)		3 credits
EDUCATION ELECTIVE		3 credits

SECOND YEAR – FIRST SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 12 credits
Students must take 427-228 or 428-322 (whichever was not taken in first year) and three courses (9 credits) among the following:

415-341	RELIGIOUS RESPONSE (CATHOLIC SCHOOLS)
417-442	CURRICULUM & INSTRUCTION IN ELEMENTARY SCIENCE
421-342	HUMAN AND RELIGIOUS VALUES (PROTESTANT SCHOOLS)
426-322	ART CURRICULUM & INSTRUCTION
427-305	EXPERIENCES IN COMMUNICATION
427-343	ADVANCED READING INSTRUCTION – ELEMENTARY SCHOOL
429-422	MUSIC CURRICULUM & INSTRUCTION
430-322	SOCIAL STUDIES CURRICULUM & INSTRUCTION
431-322	FRENCH – SECOND LANGUAGE
431-347	ENGLISH – SECOND LANGUAGE
434-421	MOVEMENT EDUCATION

NOTE: Students who have chosen subjects other than English or Mathematics as Academic Option I or II must elect curriculum courses which relate to those options (for example, if Option I is French then 431-322 Teaching French as a Second Language must be chosen.

FREE ELECTIVE — 3 credits

SECOND YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 12 credits
- Option I (3 credits) to be continued in 3rd Year
- Option II (3 credits) to be continued in 3rd Year
- Option IV (3 credits)
- Option V (3 credits)

FREE ELECTIVE — 3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-421	FIELD EXPERIENCE – EARLY CHILDHOOD	6 credits
433-421	ELEMENTARY CURRICULUM – EARLY CHILDHOOD	3 credits
EDUCATION ELECTIVES		6 credits

THIRD YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 6 credits
- Option I (3 credits)
- Option II (3 credits)

FREE ELECTIVES — 9 credits

ELEMENTARY EDUCATION – LATER CHILDHOOD
(For course selections, see Guidelines)

FIRST YEAR – FIRST SEMESTER

ACADEMIC CONCENTRATION — 12 credits
- Option I (6 credits) to be continued in 2nd, 3rd Years
- Option II (3 credits) to be continued in 2nd, 3rd Years
- Option III (3 credits)

DEPARTMENTAL COURSE SELECTIONS — 3 credits
Students must take 448-204.

FIRST YEAR – SECOND SEMESTER (BES)

448-305	INTEGRATED STUDY OF TEACHING & LEARNING	6 credits
435-245	DIRECTED OBSERVATION – ELEMENTARY	3 credits
Curriculum Course (427-238 or 428-332)		3 credits
EDUCATION ELECTIVES		3 credits

SECOND YEAR – FIRST SEMESTER

DEPARTMENTAL COURSE SELECTIONS — 12 credits
Students must take 427-238 or 428-332 (whichever was not taken in first year) and three courses (9 credits) among the following:

415-341	RELIGIOUS RESPONSE (CATHOLIC STUDIES)
417-442	ELEMENTARY SCIENCE
421-342	HUMAN & RELIGIOUS VALUES
426-332	ART CURRICULUM & INSTRUCTION – LATER CHILDHOOD
427-305	EXPERIENCES IN COMMUNICATIONS
427-343	ADVANCED READING INSTRUCTION – ELEMENTARY SCHOOL
429-432	MUSIC CURRICULUM & INSTRUCTION
430-332	LOCAL & COMMUNITY STUDIES
431-332	FRENCH AS SECOND LANGUAGE
431-347	ENGLISH AS SECOND LANGUAGE
434-421	MOVEMENT EDUCATION

NOTE: Students who have chosen subjects other than English or Mathematics as Academic Option I or II must elect curriculum courses which relate to those options (for example, if Option I is French then 431-332 Teaching French as a Second Language must be chosen).

FREE ELECTIVES — 3 credits

SECOND YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 12 credits
- Option I (3 credits) to be continued in 3rd Year
- Option II (3 credits) to be continued in 3rd Year
- Option IV (3 credits)
- Option V (3 credits)

FREE ELECTIVES — 3 credits

THIRD YEAR – FIRST SEMESTER (FES)

435-431	FIELD EXPERIENCE – LATER CHILDHOOD	6 credits
433-431	ELEMENTARY CURRICULUM – LATER CHILDHOOD	3 credits
EDUCATION ELECTIVES		6 credits

THIRD YEAR – SECOND SEMESTER

ACADEMIC CONCENTRATION — 6 credits
- Option I (3 credits)
- Option II (3 credits)

FREE ELECTIVES — 9 credits

DIPLOMA PROGRAMS

At the beginning of the fall session each student will be assigned a Faculty adviser who will assist the student in selecting courses and arranging a suitable timetable. In particular he will offer counselling in connection with the academic and student teaching programs.

In association with Education 446-504D, Orientation to Teaching, the Advisory Program also provides students with the opportunity to meet periodically with practicing teachers and administrators and with representatives of teachers' associations and school boards.

SECONDARY EDUCATION

Candidates will be admitted to prepare in either one or two teaching areas.

REQUIRED COURSES

(ALL CANDIDATES)

411-592 School Law
413-500 History and Philosophy of Education
or
415-594-595 Philosophy of Catholic Education
427-505 Language and Other Media
414-500 Educational Psychology
435-574† Classroom Student Teaching
446-504 Orientation to Teaching

†Students in the Secondary Diploma Program are required to complete two periods of student teaching comprising three weeks in the first semester and five weeks in the second, in selected high schools. During these periods, students are expected to commit themselves exclusively to the teaching programs arranged by the Faculty in cooperation with the schools.

From the following list, the candidate preparing in a single teaching subject **CHOOSES ONE**, the candidate preparing in two teaching subjects **CHOOSES TWO**:

ART	426-572D	PHYSICS	417-578D
BIOLOGY	417-576D	RELIGION (Catholic)	415-571D
CHEMISTRY	417-577D	RELIGION (Protestant)	421-301A & 572B
ENGLISH	427-572D	FRENCH	431-572D
ENGLISH (Second Language)	431-558D	LATIN	431-578D
GENERAL SCIENCE*	417-575D	GERMAN	431-579D
GEOGRAPHY	430-572D	ITALIAN	431-579D
HOME ECONOMICS**	418-572A & 573B	SPANISH	431-579D
HISTORY	430-575D	SOCIAL STUDIES*	430-579D
MATHEMATICS	428-572D		

*Not available as a single subject.
**Available as a single subject only.

ELECTIVE COURSES

The candidate preparing in a single teaching subject must take an additional advanced course in the teaching subject (List A) and one other course (List B).

LIST A

415-503	RELIGIOUS RESPONSE, SECONDARY ADVANCED, CATHOLIC STUDIES
417-573A	SCIENCE CURRICULUM AND INSTRUCTION, ADVANCED
418-574	HOME ECONOMICS, CURRICULUM AND INSTRUCTION, ADVANCED
421-301A	LIVING WITH QUESTIONS (RELIGIOUS EDUCATION, PROTESTANT)
426-573A	ART, SECONDARY ADVANCED, CURRICULUM AND INSTRUCTION
427-573B	ENGLISH, SECONDARY ADVANCED, CURRICULUM AND INSTRUCTION
428-573B	MATHEMATICS, ADVANCED, CURRICULUM AND INSTRUCTION
430-573B	GEOGRAPHY, SECONDARY ADVANCED, CURRICULUM AND INSTRUCTION
430-576B	HISTORY, SECONDARY ADVANCED, CURRICULUM AND INSTRUCTION
431-573A	SECOND LANGUAGE, SECONDARY ADVANCED, CURRICULUM AND INSTRUCTION

LIST B

411-575	SECONDARY SCHOOL CURRICULUM
415-573A	LIVING WITH INSIGHT (Dept. of Catholic Studies)
421-572B	HUMAN AND RELIGIOUS VALUES IN THE SECONDARY SCHOOL (Protestant)

426-532A or B ART CURRICULUM AND INSTRUCTION – LATER CHILDHOOD
427-576A or B READING IN THE HIGH SCHOOL
431-501A or B or D LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING
431-504A or B or D QUEBEC CULTURAL CONTENT OF SECOND LANGUAGE PROGRAMS
432-204A or B INTRODUCTION TO EDUCATIONAL MEDIA

NOTE: Additional courses normally available in the B.Ed. Program may be open to 1G students who are following a single teaching elective. Admission to these courses is subject to the recommendation of the student's department and the permission of the instructor. Information as to available courses may be obtained from the student's department or the office of the Coordinator of the Secondary Diploma Program.

TECHNICAL/VOCATIONAL AND BUSINESS EDUCATION CONCENTRATIONS

REQUIRED COURSES

ALL CANDIDATES
411-592 SCHOOL LAW
413-500 HISTORY AND PHILOSOPHY OF EDUCATION
OR
415-594-595 PHILOSOPHY OF CATHOLIC EDUCATION
414-500 EDUCATIONAL PSYCHOLOGY
427-505 LANGUAGE AND OTHER MEDIA
435-574 CLASSROOM STUDENT TEACHING

Technical/Vocational Concentration only:
436-572 METHODS IN TEACHING TECHNICAL/VOCATIONAL SUBJECTS
436-574 ORGANIZATION AND ADMINISTRATION IN TECHNICAL/VOCATIONAL SUBJECTS

Business Education Concentration only:
436-562 TEACHING METHODS IN BUSINESS EDUCATION
436-564 ORGANIZATION AND ADMINISTRATION IN BUSINESS EDUCATION

OPTIONAL COURSE(S)

Students in the Technical/Vocational and Business Education concentrations will take the following courses:
436-575 CURRICULUM DEVELOPMENT IN TECHNICAL/VOCATIONAL EDUCATION
436-576 EDUCATIONAL EVALUATION IN TECHNICAL/VOCATIONAL EDUCATION
OR
the equivalent of one full course from options available in the Faculty of Education or in other faculties.

ELEMENTARY AND SECONDARY EDUCATION – MUSIC

Candidates with an acceptable degree in school music (or equivalent) will be admitted to a program which provides preparation for the teaching of music at both the elementary and secondary school levels. Students will take all of the REQUIRED COURSES listed in the previous section together with the following:
429-542A ELEMENTARY MUSIC CURRICULUM AND INSTRUCTION
429-572B SECONDARY MUSIC CURRICULUM AND INSTRUCTION

ELEMENTARY EDUCATION – EARLY OR LATER CHILDHOOD

Candidates will be admitted to prepare for teaching at the Early or Later Childhood levels.

REQUIRED COURSES

ALL CANDIDATES
411-592A or B SCHOOL LAW
413-502A or B SOCIAL FOUNDATIONS OF EDUCATION
or
415-594A or 595B PHILOSOPHY OF CATHOLIC EDUCATION
414-500D EDUCATIONAL PSYCHOLOGY
435-544D CLASSROOM STUDENT TEACHING
446-504D ORIENTATION TO TEACHING

The integration of theoretical and practical dimensions of the various courses is provided through an internship. This requires, in addition to a program of study at the Faculty, that students teach in classrooms for part of each week throughout the year. A Faculty member will serve as adviser to a group of students. The adviser will work cooperatively with students and school personnel in the preparation and evaluation of teaching assignments.

EARLY CHILDHOOD

426-522A, B	ART
427-522D	READING & LANGUAGE ARTS
428-522A or B	MATHEMATICS
429-522A or B	MUSIC

one of the following:

415-547A or B	RELIGIOUS RESPONSE
417-522A or B	SCIENCE
421-542A or B	HUMAN & RELIGIOUS VALUES
430-522A or B	SOCIAL STUDIES
431-522B	FRENCH CURRICULUM & INSTRUCTION
431-547A	TEACHING ENGLISH AS A SECOND LANGUAGE
433-512A or B	KINDERGARTEN
434-521A or B	MOVEMENT EDUCATION

LATER CHILDHOOD

427-532D	READING & LANGUAGE ARTS
428-532A or B	MATHEMATICS
430-532A or B	LOCAL & COMMUNITY STUDIES

Two of the following:

415-547A or B	RELIGIOUS RESPONSE
417-532A or B	SCIENCE
421-542A or B	HUMAN & RELIGIOUS VALUES
426-532A or B	ART
427-594B	CREATIVE DRAMA FOR THE CLASSROOM
429-532A or B	MUSIC
430-533B	COMPARATIVE SOCIAL STUDIES
431-532A or B	FRENCH
431-547A or B	TEACHING ENGLISH AS A SECOND LANGUAGE
432-204A or B	EDUCATIONAL MEDIA
434-531A or B	PHYSICAL EDUCATION

ELEMENTARY EDUCATION – FRENCH (SECOND LANGUAGE)

411-592A or B	SCHOOL LAW
413-502A or B	SOCIAL FOUNDATIONS OF EDUCATION, or
415-594A or 595B	PHILOSOPHY OF CATHOLIC EDUCATION
414-500D	EDUCATIONAL PSYCHOLOGY
431-501A	LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING
431-544D	TEACHING FRENCH AS A SECOND LANGUAGE
431-545B	THE BILINGUAL CLASS
431-540A	ANIMATION TECHNIQUES
435-544D	CLASSROOM STUDENT TEACHING
446-504D	ORIENTATION TO TEACHING

Two of any Early or Later Childhood electives except French and Reading and Language Arts (See above).

CERTIFICATE PROGRAMS

Candidates will follow the profile specified above for Diploma programs.

ELEMENTARY – EARLY CHILDHOOD
ELEMENTARY – LATER CHILDHOOD
FRENCH – SECOND LANGUAGE
TECHNICAL-VOCATIONAL
BUSINESS EDUCATION

4 ADMISSIONS

GENERAL REQUIREMENTS

(These regulations are correct at the time of going to press but are subject to change either by the University or by the Quebec Department of Education)

BACHELOR OF EDUCATION

(three-year, 90 credit, University-level program)

Quebec applicants must possess a Diploma of Collegial Studies as awarded by a CEGEP, or its equivalent. There are no specified pre-requisite courses required for admission but candidates are advised to include Introductory Psychology & Sociology and other courses relevant to their teaching areas. For example, a prospective teacher of Mathematics would be advised to have a concentration in Mathematics courses; courses in Biology and Chemistry are strongly advised for Physical Education applicants; courses in Art and Music would be appropriate for Early Childhood applicants. Generally speaking, CEGEP candidates are advised to concentrate on those subjects which are taught in the Elementary and Secondary Schools of the Province of Quebec.

Ontario Grade XIII candidates may enter the 90 credit program if they have an average of 70% in five appropriate Grade XIII subjects.

Students from other Provinces of Canada are eligible to enter a 120 credit program, if they have an average of 70% in Grade XII. Grade XII students from the United States are also eligible to apply for a 120 credit program.

Overseas students are eligible to apply if they possess certificates equivalent to those outlined above. Such applicants should refer to the "General Announcement" and are advised to write the Admissions Office for an evaluation of their qualifications.

NOTE: 1. Candidates applying for B.Ed. programs in Physical Education, French, and Foreign Languages will be required to arrange interviews with the department concerned prior to admission.

NOTE: 2. Applicants who possess a first Bachelor's degree and who wish to study, for example, in the field of Physical Education or Art, should apply for admission to the B.Ed. degree with advanced standing.

NOTE: 3. Any candidate enrolled in the McGill B.Ed. as a second degree, will be required to take a minimum of 60 McGill credits in order to graduate.

McGILL DIPLOMA IN EDUCATION

(one-year program for University graduates)

All candidates for this Diploma must possess a university degree, or its equivalent, prior to admission. Candidates must normally have at least a 2nd class average in their degree and either a major (six full courses) in one subject taught in the elementary or secondary schools of the Province of Quebec or two minors (three full courses) in two such subjects.

In addition to these minimum requirements, certain subject areas have further requirements as outlined below:—

SECONDARY ART

Candidates must possess a degree of Bachelor of Fine Arts, an Art School equivalent plus a university degree, or a Degree with Art Major in which studio work formed the major part of the program. Candidates are required to present a portfolio of their work and to arrange for an interview with a member of the Department usually during the month of April prior to admission.

SECONDARY ENGLISH

Candidates should normally have taken six full university courses in the range offered in Departments of English, or three courses in English and three courses in another teaching subject; courses in linguistics, drama, and film are also recognized. For candidates who have

graduated from a four-year B.A. degree program, a required first-year course in English may not be included in order to achieve the requisite number of courses. Candidates with special experience in English outside academic course work should apply to the Department of Education in English of the Faculty of Education if they are otherwise short of requirements.

SECONDARY SOCIAL SCIENCES

a) Geography: The normal requirement of six university courses in geography, or three courses in geography and three courses in another teaching subject is applicable. Candidates should have courses in both physical and human geography and, preferably, one course in Cartography.

b) History: The normal requirement applies as for geography above, but candidates should have at least one course in Canadian history and one course in European history. Candidates without these courses may be required to undertake a reading program.

c) Social Studies: Candidates may elect Social Studies as one of their teaching options but, in addition, they must have the qualifications to be admitted into a second teaching area. Their Degree must show an acceptable sequence of courses in at least one social science discipline, e.g. political science, economics, anthropology, or sociology.

SECONDARY MATHEMATICS

Candidates seeking to teach only mathematics at secondary level must possess the normal requirement of 6 full courses in university-level mathematics provided that there has been no undue emphasis in one particular area, e.g. four courses in statistics.

SECONDARY SCIENCE

Candidates preparing to teach only science at secondary level should have a minimum of six full courses in science with at least three courses in one science subject taught in the high school. To teach science as a second subject, the minimum of three university courses would be required providing they are in subjects taught in the high school.

SECONDARY THEOLOGY

Applicants who wish to teach Religious and Moral Formation must have a minimum of six full courses in theology. Those planning to teach another subject as well as religion, require a minimum of three courses in theology.

MUSIC

Candidates must possess a Bachelor of Music Degree in School Music or its equivalent. Students in this program are required to do student teaching and course work at both elementary and secondary levels.

SECONDARY SECOND LANGUAGES

French as a Second Language, English as a Second Language, Modern Languages (German, Italian and Spanish).

In addition to meeting the minimum admission requirements, candidates for these options will be assessed on their oral and written competence. Assessment sessions will be held in the spring prior to admission. Those interested in these options should contact the Chairman, Department of Education in Second Languages, Faculty of Education.

SECONDARY LATIN

Candidates interested in this option should contact the Chairman of the Department of Education in Second Languages of the Faculty of Education before submitting an application.

SECONDARY HOME ECONOMICS

Candidates must possess a University degree in Home Economics or an acceptable equivalent.

The candidate's transcript should show a sufficient number of courses in at least three of the areas of the secondary school curriculum in Home Economics and a minimum of courses in the remaining areas. The Quebec Secondary School Curriculum in Home Economics has the following areas – Foods and Nutrition, Family Living, Housing and Design, Consumer Education and Clothing and Textiles.

SECONDARY TECHNICAL-VOCATIONAL OR BUSINESS EDUCATION

The candidate must possess a university degree, or its equivalent, in appropriate subjects. Each candidate's credentials will be individually evaluated to ensure they meet the requirements with respect to academic background and work experience. This will be followed by an interview to further determine the candidate's suitability for admission to this program. All interested applicants should contact Professor F. Jack Young, Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec.

ELEMENTARY PROGRAM

Candidates should possess the normal requirements of a 2nd class average in their degree and either a major (six full courses) in one subject taught in the schools or two minors (three full courses) in two such subjects. Candidates whose degrees do not contain the exact concentration of courses as outlined above may be considered for admission on the basis of the appropriateness for elementary school teaching of the courses taken in their degree, the standing achieved, letters of reference, etc.

ELEMENTARY FRENCH

In addition to the requirements for all Elementary candidates as outlined above, all applicants will be assessed on their oral and written competence in the French language.

PHYSICAL THERAPY

In conjunction with the School of Physical and Occupational Therapy, a one-year program leading to the McGill Diploma in Education is offered to qualified Physical Therapists who aspire to a teaching career in a recognized school of Physical Therapy. For further information write to The School of Physical and Occupational Therapy, 3654 Drummond Street, Montreal 109, Quebec, Canada.

CERTIFICATE PROGRAMS

(One-year programs leading to a Quebec Teaching Permit)

Quebec applicants must possess a Diploma of Collegial Studies as awarded by a CEGEP or its equivalent. Non-Quebec applicants with equivalent qualifications are also eligible to apply. The admission requirements are similar to those for admission to the 90 credit B.Ed. Degree program and are outlined on page 26.

The specific program requirements are as follows:—

ELEMENTARY

There are no specific pre-requisites but candidates are advised to have a background of courses appropriate for teaching in the elementary school.

(It is intended that this Program will be withdrawn at the end of the 73-74 academic year).

ELEMENTARY FRENCH

In addition to the normal admission requirements, all applicants will be assessed on their oral and written competence in the French language.

TECHNICAL-VOCATIONAL OR BUSINESS EDUCATION

The candidate must have the equivalent of thirteen (13) years of scholarity. This would normally mean Quebec Grade XI High School Leaving Certificate, or equivalent. In addition a candidate must:

a) be a graduate of a recognized professional training institution (CEGEP, Business College, Technical or Professional Institute, Trade School), in appropriate subjects.

or

b) possess journeyman's papers and have satisfactory work experience.

or

c) in occupations where journeyman's papers are not provided, have at least six (6) years relative experience in industry or business.

Each candidate's credentials will be individually evaluated to ensure they meet the requirements with respect to academic background and work experience. This will be followed by an interview to further determine the candidate's suitability for admission to the program. All interested applicants should contact Prof. F. Jack Young, Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec.

NOTE: It should be emphasized that meeting minimum academic admission requirements does not automatically guarantee admission. Letters of references are required of all candidates and interviews may also be required.

Fluency in one of the two official languages (English or French) is a requirement for all candidates seeking Quebec Teacher Certification (See Section 5 Quebec Teacher Certification). Applicants whose mother tongue is a language other than English or French are strongly advised to have their oral and written ability evaluated before submitting an application. (Tests may be arranged by contacting the Dept. of English or the Dept. of Second Languages at the Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec, Canada).

GRADUATE PROGRAMS (M.A., M.Ed., D.Ed., Ph.D.)

M.A., and M.Ed. DEGREES

Candidates must normally possess an undergraduate degree from a recognized university, with second class standing in at least one continuation subject, and also a Permanent Teaching Diploma valid in the Province of Quebec, or its equivalent. Candidates for the degree of M.Ed. in Counsellor Education are required to take, in addition, a battery of standardized tests, while those considering the M.Ed. degree in a Teaching subject must furnish evidence of competence in practical teaching.

D.Ed. (COUNSELLOR EDUCATION)

Candidates must hold the degree of M.Ed. in Counsellor Education of McGill University, or its equivalent, and have maintained a good second class standing in the degree. In addition, applicants must supply certain personal and educational data, take certain tests and submit to an interview procedure. For candidates who do not meet all of the above requirements, courses of qualifying study may be prescribed.

Ph.D.

At present the Faculty of Education does not offer a formal program leading to a Ph.D. However, under the Regulation set out in the Calendar of the Faculty of Graduate Studies and Research, it is possible for exceptionally well-qualified candidates to proceed to the degree of Ph.D. by making direct application to the Dean of the Faculty of Graduate Study and Research. Such candidates should have a very clear idea at the outset of the area of their prospective research.

Further specific requirements for particular degrees, and other information, should be sought from the Director of Graduate Studies, Faculty of Education, 3700 McTavish Street, Montreal 112, before application to enter a program is made.

ADMISSION PROCEDURES

B.Ed. DEGREE PROGRAMS / McGILL DIPLOMA IN EDUCATION PROGRAMS / CERTIFICATE PROGRAMS

Apply before 1st March to
Admissions Office,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec, Canada.

NOTE 1. In certain circumstances, it may be possible for B.Ed. applicants to be admitted in January or July. Applicants interested in these possibilities should contact the Director of Admissions in the first instance.

NOTE 2. Students already attending McGill University and wishing to transfer from another Faculty into the B.Ed. or Certificate Programs, and candidates who have previously been admitted to the Faculty of Education and are now wishing to return as full-time students, should apply before 1st July to Associate Dean's Office, Faculty of Education, 3700 McTavish Street, Montreal 112, Quebec, Canada.

PHYSICAL THERAPY (McGILL DIPLOMA IN EDUCATION)

Apply before 1st March to:
The School of Physical & Occupational Therapy,
3654 Drummond Street,
Montreal 109, Quebec, Canada.

HOME ECONOMICS (B.Ed. DEGREE)

Apply before 1st March to:
School of Food Science,
Macdonald College 800, Quebec, Canada.

B. ED. (ELEMENTARY EDUCATION) FOR PART-TIME STUDENTS

Admission is possible in September, January and July. Apply to:
Admissions Office,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec, Canada.

DIPLOMA IN KINDERGARTEN

Apply by 15th May to:
Summer Session Office,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec, Canada.

DIPLOMA IN SPECIAL EDUCATION / DIPLOMA IN READING

For Summer Session:
Apply by 15th May to:
Summer Session Office,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec, Canada.

For Winter Session*
Course Registration in person during first week of September at:
Centre for Continuing Education,
772 Sherbrooke Street West,
Montreal 101, Quebec, Canada.

TECHNICAL-VOCATIONAL AND BUSINESS EDUCATION DIPLOMA PROGRAM (SUMMER SESSION)

Apply before 1st May (preferably earlier) to:
Prof. F.J. Young,
Faculty of Education,
3700 McTavish Street,
Montreal 112, Quebec, Canada.

GRADUATE DEGREE PROGRAMS

Apply to:
Director of Graduate Studies,
Faculty of Education,
3700 McTavish Street,
Montreal 112, Quebec, Canada.

NOTE 1. Summer Session and Winter Session candidates in Counsellor Education, Educational Administration and programs in Social Foundations of Education and French as a Second Language, are required to apply by March 1. Other candidates applying for admission for the first time and wishing to start in the Summer Session must apply before April 1, and those wishing to commence their studies in the Fall must apply by July 3.

NOTE 2. Admission to the Faculty of Graduate Studies and Research for graduate programs in Education is made by the Dean of the Graduate Faculty on the basis of undergraduate record and satisfactory professional training. Admission to the appropriate courses is made by the individual departments of the Faculty of Education, and, where appropriate, by the departments concerned in other Faculties in consultation with the Faculty of Education.

* For Off-Campus courses
Apply to officer responsible for coordinating Continuing Education at the Regional School Board Offices.

*NOTE 1. Applications for Diploma in Special Education program must be approved, before Registration, by the Chairman, Dept. of Educational Psychology & Sociology, 3700 McTavish Street, Montreal 112.

*NOTE 2. Applications for the Diploma in Reading program must be approved, before Registration, by the Director, Reading Centre, 3700 McTavish Street, Montreal 112.

5 ACADEMIC REGULATIONS

ATTENDANCE

a) The pattern of attendance necessary to satisfy the requirements of course work will vary according to the nature of different subjects and the professors' approaches to them. A course constitutes a contractual and social obligation between the professor and the student. It is, therefore, the responsibility of the professor to make students aware of the unique requirements of a course and the manner in which they may be fulfilled, and the responsibility of the student to meet these requirements.

(The intention of the foregoing is to avoid the imposition of arbitrary and artificial attendance regulations. The removal of restrictions implies confidence in the maintenance of a state of good will, mutual trust and common sense among the parties concerned.)

b) Students in programs involving Student Teaching, Internship or Field Experiences must inform the Student Teaching Office immediately if, for any reason, they are unable to attend their school.

c) Students wishing to withdraw or transfer from the Faculty must complete the official Withdrawal or Transfer Forms available from their Coordinator or the Associate Dean's Office.

STANDING AND PROMOTION

BACHELOR OF EDUCATION PROGRAMS

Each course is assigned a credit rating based on the number of hours per week the student has contact with the course.

GRADE POINT AVERAGE

Courses are graded either by letter grades or in percent, with the following correspondences: A (80-100%), B (65-79%), C (55-64%), D (45-54%), F (0-44%). Grades A, B, and C are termed satisfactory passes, D is a conditional pass, and F is a failure.

Ratings of 4, 3, 2, 1, and 0 are attached to the grades of A, B, C, D, & F respectively and the earned grade point for each course is the product of the credit rating of the course and the grade rating attained. Standing will be determined on the basis of a grade point average (GPA) computed by dividing the sum of the grade points earned by the total course credits attempted.

The cumulative grade point average (CGPA) will be the grade point average calculated using the student's entire record in the program. The original mark of a failed course will continue to be used in the calculation of the CGPA even after the course is repeated and passed, or if a supplemental examination is taken and passed. Under certain conditions (See 'Course Load' below) a student may be permitted to take more courses than would normally be carried. All such courses will be included in the CGPA.

STANDING

There are three categories of standing: Satisfactory, Probationary, and Unsatisfactory.

A student normally enters the Faculty in Satisfactory standing and remains in this standing until his GPA drops below 2.0.

A student whose GPA drops to between 1.5 and 1.99 (1.2 and 1.99 for his entering year) goes into Probationary standing.

A GPA of less than 1.5 (less than 1.2 in the entering year) places a student in Unsatisfactory standing.

A student in Probationary standing must return to Satisfactory standing within one year by obtaining a GPA of 2.5 or attaining a CGPA of 2.0; otherwise he will be placed in Unsatisfactory standing.

A full-time student must remain in a position to complete his degree requirements within five years of admission to a 90-credit program, otherwise he reverts to Unsatisfactory standing.

COURSE FAILURE

If a student is judged a failure in the field experiences of his program, he will be required to withdraw from the Faculty. A request for subsequent re-admission may be made to the Committee on Admission, Standing and Promotion. If a student fails a course other than in field experiences, he may be permitted to sit a supplemental, repeat the course, or substitute another course at the discretion of the Committee on Admission, Standing, and Promotion.

Students in Unsatisfactory standing must withdraw from the Faculty. They may be re-admitted after appeal to the Committee on Admission, Standing and Promotion and subsequently considered to be on Probationary standing. A student in Unsatisfactory standing for the second time will be required to withdraw permanently.

COURSE LOAD

Full-time students in Satisfactory standing take between 13 and 17 credits per term. A higher load may be permitted students whose GPA is above 3.0. Full-time students on Probationary standing take between 10 and 12 credits per term, and may add to this load a repeated course in which a grade of D was originally obtained.

DEGREE REQUIREMENTS

To be eligible for a degree, a student must have accumulated 90 course credits (i.e. passed courses whose credit total is 90), obtained a C grade or better in his teaching option(s) and related method(s) courses, and have a CGPA of at least 2.0.

CREDIT FOR CEGEP OR COLLEGE-EQUIVALENT COURSES

A student may include up to 18 credits of CEGEP or college-equivalent courses (provided these have not been used as part of the requirements for the Diploma of Collegial Studies) towards the 90 credits required for the B.Ed. degree.

McGILL DIPLOMA IN EDUCATION AND CERTIFICATE PROGRAMS

TO OBTAIN A CLEAR PASS

(i) Students must have a satisfactory standing in student teaching.

(ii) Students in the secondary school option are permitted one D grade (exclusive of student teaching).

(iii) Students in the elementary option are permitted two D grades (exclusive of student teaching).

(iv) Students are not permitted any F grades.

FAILED STANDING

A student who fails more than two courses (either full or half course), fails the year. When a student's record includes one or more failures and one or more D's, so that the total number of failures and D's is more than two, the Committee on Admission, Standing and Promotion may recommend that such a student fails the year.

SUPPLEMENTAL PRIVILEGES

A student may be permitted to write a maximum of two supplemental examinations (either full or half course) in order to meet the criteria for a clear pass. In courses not evaluated by examination, a supplemental examination is not usually available. In such cases, it may be necessary for the student to repeat the course or to meet such other requirements as the Committee on Admission, Standing and Promotion may propose.

SUPPLEMENTAL EXAMINATIONS

If a student fails a course or obtains a conditional pass (45-54%), he may be permitted to sit a supplemental, repeat the course or substitute another course. It should be emphasized that these privileges are within the discretion of the Committee on Admission, Standing and Promotion. If permission is granted, the student must normally clear the failure or conditional pass within 16 months of terminating the original course.

(It should be noted that supplemental examinations are not necessarily available in all courses and that in fact no supplemental examinations are offered in Art, Music, Second Languages and Student Teaching. It is therefore the students' responsibility to check with individual instructors to ascertain whether or not supplementals will be available.)

Supplemental examinations, if available, are normally offered during the month of August. Students with permission to write such examinations must apply on the prescribed Form (before July 2) and pay the prescribed Supplemental Examination Fee.

DEFERRED EXAMINATIONS

A student who, for reasons such as illness or family affliction, has been unable to write one or more final examinations, may receive permission to write supplemental examinations in their stead. An 'L' will appear on the Report of Standing in place of a grade in such courses, and will be replaced by the grade obtained in the deferred examination after it has been written.

INCOMPLETE COURSES

If, in the instructor's opinion, there is sufficient and valid reason to permit a delay in the submission of required term work, an extension of deadline may be granted the student. In this case, the Report of Standing will show a 'K' (incomplete) until either the final grade has been submitted by the instructor or the deadline date has passed. In this latter case, 'K' will be replaced by 'F' (Fail).

CHANGE OF COURSE AND WITHDRAWAL FROM COURSES

Permission to change courses or withdraw with approval from courses must be obtained from the student's Advisor and/or Coordinator. The deadline dates for these changes are shown in the Calendar of Dates on page 2.

TRANSFER CREDITS

BACHELOR OF EDUCATION PROGRAMS

Credit may be granted by the Faculty of Education for courses taken at recognized universities other than McGill but not more than 30 credits of this type will be allowed towards the B.Ed. degree. Students seeking advanced standing upon admission should clearly indicate on their Application Forms which courses they wish to have considered for this purpose. Students already enrolled in the program must obtain approval from the Associate Dean (Student Affairs) before embarking on such courses. Normally, such transfer credits should be taken in the early part of the degree program.

McGILL DIPLOMA IN EDUCATION AND CERTIFICATE PROGRAMS

Transfer credit in these programs is not normally possible because of the Provincial requirement to complete a full-year of studies for scholarity purposes. However, students who can show proof of having taken equivalent courses over and above the requirements for their Degree or Diploma of Collegial Studies, should apply for credit transfer in the first instance to the Associate Dean (Student Affairs).

B.Ed. (ELEMENTARY EDUCATION) FOR PART-TIME STUDENTS

Teachers enrolled in this program may transfer up to 30 credits from a recognized university

other than McGill. In general, the same regulations apply as for the full-time B.Ed. degree program. A maximum of 45 Education course credits may be applied to the Degree from the Diploma programs in Kindergarten, Reading and Special Education. A maximum of 30 credits may be applied to the Degree from the McGill post-CEGEP Certificate in Education Elementary programs.

NOTE: The above Faculty Regulations lie within the jurisdiction of the Faculty Committee on Admission, Standing and Promotion. Inquiries concerning their meaning or application should be addressed to the Chairman of that Committee.

"ACADEMIC CREDIT TRANSFER AGREEMENT"

Under the terms of an agreement between McGill University, Sir George Williams University, the Université de Montréal and the Université du Québec, it is possible for students at any one of these universities to take courses for transfer credit at any other of the participating universities without payment of additional fees provided that appropriate arrangements are made in advance through the office of the Associate Dean (Student Affairs). Further details of this arrangement may be found in the "General Announcement".

QUEBEC TEACHER CERTIFICATION

(The following is provided for general information purposes only. To the best of our knowledge the information was correct as at press time but is subject to change. For comprehensive and further information please refer to the relevant Statutes and Orders-in-Council of the Province of Quebec).

Teacher Certification in Canada is a Provincial responsibility. McGill University offers approved programs which the Government of Quebec accepts for initial Teacher Certification. These programs are:

McGill Diploma in Education
Certificate in Education
Bachelor of Education.

Upon satisfactory completion of one of the approved programs, the Government issues a "Permit to Teach" showing the level and area of concentration. This "Permit to Teach" is normally valid for five years. If the holder of such a Permit requires a permanent Quebec Teaching Diploma he must complete two years of satisfactory teaching in Quebec during the validity of the Permit. If the holder of such a Permit or of a permanent Diploma wishes to teach in another Province or in another Country he must apply directly to the competent Teacher Certification Agency in the relevant Province or Country. Similarly, teachers from other Provinces or Countries who wish to teach in Quebec must apply to the competent authorities in Quebec:

Teacher Certification & Probation Service,
Complex 'G', 20th Floor
Parliament Buildings,
Quebec City, Canada.

In order to be eligible for a "Permit to Teach" candidates must be either Canadian Citizens, or Landed Immigrants, or must possess a Work Permit. To be eligible for a permanent Quebec Diploma it is necessary to be a Canadian Citizen.

In addition to meeting these requirements, candidates for Teacher Certification must be recommended by McGill University in each of the following areas:—

1. Adjustment of the personality for teaching
2. Command of the language of instruction
3. Academic competency in the area of concentration
4. Theoretical knowledge in the field of psycho-pedagogy
5. Aptitude as a classroom practitioner
6. Understanding of the Quebec educational system.

Regulation No. 4 of the Quebec Department of Education "Respecting the Permit and the Licence to Teach" was approved by Order-in-Council Number 592, March 30, 1966, and is reproduced below:

FACULTY OF EDUCATION

1. Authorization to teach at the levels of study governed by the regulations of the Minister of Education shall be awarded by the Minister and shall first be in the form of a permit to teach and later in the form of a licence to teach.

2. The permit to teach shall be awarded to every candidate who, after a thirteenth year of study or its equivalent. has successfully completed an approved training program at a recognized institution.

The duration and the nature of this program shall vary according to the level and the area of teaching selected by the candidate.

However, this program shall include, at the minimum, one year or the equivalent of, psychology, teaching methods and classroom practice.

3. The permit shall be valid for a period of five years. It shall confer the right to teach during any two of these five years in an institution recognized for the purposes of the present regulation. Under exceptional circumstances, this right may be extended for one year.

4. The licence to teach shall be awarded to the holder of a permit who, having taught for two years in accordance with section 3, is deemed competent.

5. For the application of the present regulation, the Minister of Education shall appoint a Teacher Education Committee which he shall consult regarding the matters enumerated in section 6.

The members of the committee shall be appointed for a definite period. One-third of the members shall be appointed after consultation with the most representative of teachers' associations or organizations; one-third shall be appointed after consultation with institutions at which approved teacher-education programs are provided.

6. Subject to the provisions of section 28 of the Superior Council of Education Act, the Teacher Education Committee shall be responsible for recommending to the Minister criteria relative to the following matters:

a) The recognition of institutions at which the holder of a permit may teach;

b) The supervision of the teaching performance of the holder of a permit to teach;

c) The competence which the holder of a permit must demonstrate in order to obtain a licence to teach and the manner of evaluation of this competence;

d) The suspension or revalidation of a licence to teach;

e) The approval of teacher-education programs;

f) The recognition of institutions at which teacher-education programs are provided;

g) Refresher courses for teachers and the upgrading of their qualifications.

The committee shall also be responsible for making recommendations concerning the nomenclature and terminology of permits and licences to teach.

7. The holder of a teaching diploma granted under former regulations shall retain the rights conferred by such diploma.

8. The present regulation shall come into force, in whole or in part, on the dates to be determined by the Minister.

6 GENERAL INFORMATION

FEES AND OTHER EXPENSES

The University reserves the right to make changes without notice in its published scale of tuition, board and rooms and other fees. Fees are not refundable except under special conditions.

Application Fee: $15.00

TUITION FEES

(These fees include all the regular charges for registration, laboratories, libraries, Health Service and student activities)

McGill Diploma in Education	$500.00
Certificate in Education	500.00
B.Ed. Years 1, 2, 3	638.00
B.Ed. (Physical Education) Years 1, 2, 3	658.00
B.Ed. (Home Economics) Years 1, 2	560.00
Year 3	638.00
Graduate Programs: See Calendar of Faculty of Graduate Studies & Research	
Diploma in Kindergarten, Reading, Special Education: per 3 credit course	$60.00
Diploma in Technical-Vocational or Business Education	$225.00 per Summer Session

SUPPLEMENTARY EXAMINATION FEE: $10.00

SPECIAL FEES AND PENALTIES: See "General Announcement"

BOARD AND RESIDENCE: See "General Announcement"

BOOKS

Students should expect to spend about $75.00 a session for prescribed textbooks and for classroom and laboratory supplies, all of which may be purchased from the Book Store.

TRAVELLING EXPENSES

Students enrolled in programs leading to Quebec Teacher Certification are required to participate in student-teaching and/or internship in the schools. Although every effort will be made to place a student within reasonable travelling distance, this cannot be guaranteed in every case. Students are responsible for any travelling expenses which may be incurred.

PHYSICAL EDUCATION

An additional fee is charged Physical Education students to cover part of the costs of the Outdoor Education Course. Those students who elect curling or skiing are also required to pay a separate fee.

SCHOLARSHIPS & FINANCIAL AID

The Student Counselling – Student Aid Office is equipped to handle all matters related to financial assistance (scholarships, bursaries and loans) whether university, provincial or federal. Students who are Canadian citizens or Landed Immigrants with one year's residence are usually eligible for Provincial loan or bursary assistance on the basis of financial need. Students

domiciled in Quebec or Ontario should apply in the first instance to the:

Student Counselling – Student Aid Office,
Room 110, Administration Building,
McGill University,
P.O. Box 6070,
Montreal 101, Quebec.

The above office is also able to provide advice concerning Student Loans available from the other Canadian Provinces and Territories.

The Student Counselling – Student Aid Office is the proper authority to issue Certificates and Statements concerning Attendance, Registration, etc. which are often required by students in receipt of financial assistance. Certification of registration for non-Canadian government assistance and/or letters of advice to Foreign Exchange Control Boards may also be obtained from the same office.

Undergraduate students from Canada seeking Entrance Scholarships should apply directly to the Admissions Office.

Graduate students should refer to the booklet "Scholarships, Bursaries and Loan Funds" published by the Registrar's Office.

Education students entering Technical-Vocational programs should apply directly to Prof. F.J. Young when they lodge their applications.

HEALTH AND COUNSELLING SERVICES

UNIVERSITY HEALTH SERVICES

Location: 517 Pine Avenue West
Appointment and General Office: 392-5441
Mental Health Service: 392-5449

When students enrol at McGill University they have available to them a full range of medical service provided by the McGill University Health Service. Medical clinics operate daily, five days of the week from 9:00 a.m. – 5:00 p.m. A physician is always on call at night and on weekends and he can be contacted by dialing the Health Service number. There are both male and female physicians on staff as well as a competent staff of college health nurses.

The service is available to all full-time students, undergraduate and post-graduate. Post-doctoral and part-time students are welcome to consult if a health problem arises but the full range of services may not be available to them. Students are asked to bring their Medicare cards or equivalent. All information is completely confidential and forms no part of any "University record".

Many students are seen for discussion about sexual life, contraception, drug problems and venereal disease. Students who suspect that they have V.D. are urged to consult the Service because to neglect this condition can be most damaging. Students who are concerned about a drug problem are invited to contact the Health Service and most particularly the Mental Health Section.

Part of the Health Service consists of a Mental Health Service which makes available to students psychiatric and psychological help. Students who wish to come are advised to make an appointment. If a psychological emergency arises the student should come directly to the Mental Health Service or phone immediately. All contacts by students with their service are kept completely confidential.

PARTICIPATION IN ATHLETICS

A student in any academic year wishing to participate in heavy contact athletics, e.g. football, will be required by the Athletics Department to undergo a physical examination at the University Health Service. A student who has received medical attention for an illness or accident must be declared fit by the Health Service before he may again participate in athletics.

NON-QUEBEC STUDENTS

In order to ensure medical coverage while a student at McGill, Canadian students from provinces other than Quebec are advised to consult with the medicare and hospital insurance offices of their own province before coming to McGill. This is particularly important since

residents of other provinces are not covered by Quebec Medicare and Hospitalization while studying at McGill.

FOREIGN STUDENTS

Non-Canadian students, whether undergraduate or postgraduate, are obliged to enrol in a medical and hospital insurance program. Consequently, the student and his dependents are covered to a large extent for medical and hospital expenses during the academic year. Information concerning this program can also be obtained at the general office of the Health Service.

NEW STUDENTS

All students after having been accepted by the University will receive a Medical Questionnaire complete with a return envelope addressed to the Health Service. The student is requested to complete this questionnaire and to return it in the envelope at the earliest possible date. There may be additional requirements in certain faculties and schools.

An appointment will be made for all new students to be seen by a physician at the University Health Service as early as possible during their first academic year. At this interview the health of the student will be reviewed and if it is thought necessary, the student will be medically examined. The examination may include X-ray and other appropriate laboratory or diagnostic tests. Re-examination may also be required in the interest of the student or of others attending the university.

UNIVERSITY GUIDANCE SERVICE

Location: 522 Pine Avenue West
Telephone: 392-5119

The Guidance Service is an open environment available to all members of the university. Psychological services are available on an individual or group basis and activities include self-review, counselling, psychotherapy, group encounter, psychological assessment and effective reading. A Career Information Library is also available. Full descriptive literature is available by request in person by phone or mail.

EDUCATION COUNSELLING CENTRE

Location: Room B–133
Faculty of Education
3700 McTavish Street
Telephone: 392-8889 or 392-8882
Open between the hours of 9:00 a.m. – 5:00 p.m. or in the evenings by special appointment.

The Department of Counsellor Education at McGill University provides free counselling services at their counselling centre for students. These services include educational and vocational counselling, counselling for social adjustment and emotional problems, group counselling, testing, and referral to other agencies.

The policy of the Counselling Centre is directed toward providing a place for individuals to discuss their vocational, personal, and educational problems in a confidential, understanding atmosphere. The director and his staff have the belief that any concern that one may have is worth listening to and discussing.

MISCELLANEOUS

DRESS REGULATIONS

There are no specific dress regulations in force in the Faculty of Education but all students enrolled in Teacher Certification programs are advised that Regional School Boards and individual schools may have regulations concerning acceptable attire. Students are advised to adhere to any such regulations.

LANGUAGE REQUIREMENT

One of the Government requirements for teacher certification in the Province of Quebec is a

fluent command of the language of instruction. Education students who cannot demonstrate this fluency cannot be recommended for certification and will be required to withdraw from the Faculty. It is therefore very important that students whose mother tongue is not English or French should, if they have not already done so, obtain the approval of the Chairman of either

the Department of Education in English (392-8844)

or

the Department of Second Languages (392-8861)

as soon as possible and before registration.

CERTIFIED TRANSCRIPTS OF STUDENT'S RECORD

Transcripts of academic results may be procured from the Registrar's Office on application. The charge for this service, which is payable in advance, is $1.00 each for the first two, and ten cents for each additional copy.

EDUCATIONAL MEDIA CENTRE

The Educational Media Centre exists to serve both students and staff in their requirements for media service or instruction within the Faculty of Education. Service functions include: equipment distribution; preparation of instructional materials; television recording and playback; consultation. Teaching functions include: small group media workshops; equipment operation instruction; micro-teaching; and consultation. The Centre also offers credit courses which include: Introduction to Educational Media; Projected Media; Educational Television. The Centre is located on the first floor of the Faculty of Education building.

STUDENT PLACEMENT — CANADA MANPOWER CENTRE

Location: 762 Sherbrooke St. W.

Telephone: 283-4411

The Student Placement Office, in cooperation with the School Boards wishing to participate, arranges for the distribution of application forms for teaching posts and also schedules an Interview Day, usually in April, when School Boards may interview prospective Education graduates. The office also distributes Registration Forms for the Quebec Teacher Placement Bureau. A number of School Boards regularly inform the Placement Office of teaching vacancies. All potential and recent graduates are encouraged to make full use of the Centre's services.

THE McGILL JOURNAL OF EDUCATION

The Journal of Education is published twice a year, in the Spring and Fall. Subscription rates, postpaid: 3 years — $5.00; 2 years — $4.00; 1 year — $3.00. Single copies — $2.00. Subscriptions, payable to the McGill Journal of Education, should be addressed to the Circulation Department, McGill Journal of Education, 3700 McTavish Street, Montreal 112, Quebec, Canada.

LIBRARY (LIBRARIES) AND CURRICULUM LAB

The Education Library, located on the main floor of the Faculty of Education Building, has a collection of approximately 50,000 books, journals, microfilm and microfiche on Education and related subjects, as well as books on subjects taught in schools. The Curriculum Laboratory, adjoining the Library, has about 30,000 items including school text books, a collection of children's literature and audio-visual materials such as film strips, overhead transparencies, records, cassette tapes, kits, and pictures. It has also equipment on which to view or play these.

There is a Physical Education library in the Currie Gym stocking books and journals on games, calisthenics, health and other related topics.

The Education Library and Curriculum Laboratory are open 8:30 a.m. till 10:00 p.m. on weekdays and until 1:00 p.m. Saturday. The Physical Education Library is open 9:00 a.m. to 5:00 p.m. three weekdays and 9:00 a.m. to 9:00 p.m. the other two.

Education students may use the main Library, McLennan, the Redpath Undergraduate Library as well as other McGill branch libraries. Hours may differ, however, in different libraries.

READING CENTRE

The McGill Reading Centre is a training facility for the Faculty of Education Graduate Program in Reading Education. It is located on the B1 level of the Faculty of Education building. From

October to March and during the summer session, the Centre serves the general community as a referral diagnostic and remedial education facility. The Centre also provides college-level speed and study skills courses for McGill students (and others at fee). School personnel are welcomed as visitors. Visitation to schools for consulting on programs or specific problems may also be available.

7 COURSE OFFERINGS

EXPLANATORY NOTES

This section of the Calendar lists all courses presently approved for inclusion in the degree, diploma or certificate programs offered by the Faculty of Education during full-time or part-time sessions. The Faculty reserves the right, however, to introduce such changes as may be deemed necessary or desirable.

The information provided for each course includes the title, description of content, the number, the credit rating or course weight and, where possible, the name of the responsible staff member.

COURSE NUMBER

The first three digits of the course number are used to designate the department or teaching unit from which the course originates. The code used is as follows:

411 – Educational Administration
412 – Counsellor Education
413 – Social Foundations of Education
414 – Educational Psychology & Sociology
415 – Catholic Studies
416 – Educational Research
417 – Education in Science
418 – Education in Home Economics
421 – Protestant Studies
426 – Education in Art
427 – Education in English
428 – Education in Mathematics
429 – Education in Music
430 – Education in Social Sciences
431 – Education in Second Languages
432 – Educational Media
433 – Elementary Education
434 – Physical Education
435 – Student Teaching
436 – Technical-Vocational and Business Education
446 – Orientation
448 – Integrated Studies

The last three digits of the number are generally used to indicate the year during which the course is normally taken, the teaching area or level for which it is intended, and the nature of the course.

The terminal letters indicate the semester(s) in which the courses are given, i.e. A-Fall; B-Spring; C-Summer; D-Fall & Spring.

CREDIT RATING

In the degree programs the credits given for any course are a measure of the effort expected of the student during each week of a fifteen week period. The number of hours per week, inclusive of lectures, labs, personal study, etc., devoted to a course should normally be three times the number of credits specified.

COURSE WEIGHT

In the diploma and certificate programs a weight in hours is given to each course relative to the lectures each week during one or two terms.

EDUCATION ELECTIVES

Courses which are generally available as ELECTIVES during the Basic Education Semester or the Field Experience Semester are designated in the course list by a (†) placed beside the course number. For recommendations according to program, see p. 14.

ACADEMIC COURSES

Courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the ACADEMIC CONCENTRATION are designated in the course list by a (*) placed beside the course number.

COURSE DESCRIPTIONS

†411-394B **ADMINISTRATION OF EDUCATION IN QUEBEC.** An introduction to the system of administration and decision-making in the public schools of the province as these relate to teachers. Consideration will be given to staff relationships, the politics of education, finance and administrative roles at all levels of the system. 3 credits.

411-575B **SECONDARY SCHOOL CURRICULUM.** This course focuses on the development of high school curricula in specific fields and their relationship to the total school program. It attempts to bring into perspective the total school program and the individual learning experience. It considers problems arising in the administration of curriculum development and curriculum implementation. 3 hours, 1 term.

411-592A or B **SCHOOL LAW.** This course has two principal objectives: To acquaint the teacher with the legal bases of education in Quebec; to familiarize the teacher with syndical matters and with current developments in education in the province. 1 hour, 1 term.

†412-304B **GROUP PROCESSES.** This course is intended to make the student familiar with group organization and operation as it relates to the schools. Interpretation of group inter-action and typical roles played by members in groups. 3 credits.

†413-404A or B **THE RISE OF PUBLIC EDUCATION IN THE 19TH CENTURY.** The impact of industrialism, nationalism and colonialism on the development of public education in Western society. 3 credits. Dr. Jobling

†413-405A or B **THE CRITICAL SPIRIT AND EDUCATION.** A study of contemporary social and educational criticism, and its impact on the teacher and the school. Readings may be drawn from among the works of Marcuse, Roszak, Toffler, Camus, Buber, Hutchins, Neatby et al. 3 credits.

†413-406A or B **INTRODUCTION TO COMPARATIVE EDUCATION.** Study of the dynamics of education in various societies throughout the world. The ideas and approaches of several disciplines are utilized in order to gain an understanding of educational systems and problems in comparative perspective. 3 credits. Dr. Gillett

413-407A or B **EDUCATION AND SOCIETY IN QUEBEC.** A study of the relationship between education and society in Quebec from the 17th century to the present. Such topics as cultural dualism and education, church and education, modernization, are examined. (Not offered 1973-74). 3 credits.

†413-408A or B **HUMAN VALUES AND EDUCATION.** A study of selected works dealing with moral, religious, social, and political values with a view to determining their relevance to basic educational issues. 3 credits.

413-500D **THE HISTORY AND PHILOSOPHY OF EDUCATION.** A survey of historical and philosophical developments in Western education. 3 hours, 2 terms. Staff

413-502A or B **SOCIAL FOUNDATIONS OF EDUCATION.** (See 413-500D.) 3 hours, 1 term. Staff

†414-201B **THE NATURE AND CONDITIONS OF SCHOOL LEARNING.** Learning and behaviour. Maturation and Learning. Classical conditioning and its adequacy as a model for classroom teaching. Operant conditioning and basic learning processes. Verbal learning and concept formation. Remembering and forgetting. Transfer of learning and problem solving. 3 credits.
Professor Birch

†414-203B **EDUCATION AND SOCIETY.** This course focuses broadly on education, dealing with the functions of different levels of education in societies at various stages of development, and emphasizing present-day Quebec and

Canadian society. The sources of support for public education, the controls imposed upon educators, and the relationship of education to the occupational structure are analysed. Educational opportunity and social mobility in an industrial society, and the impact of social stratification on educational policies are discussed. 3 credits. *Prerequisite: 414-205A.*

414-204A **A GENERAL INTRODUCTION TO PSYCHOLOGY FOR TEACHERS.** This course is designed for students who have had little or no previous psychology. Topics dealt with are those considered most likely to be useful for an understanding of other courses in Educational Psychology offered by the Department. The course will deal with Learning, Intelligence, Motivation, and Personality. 3 credits. Professor Gougeon

†414-205A **SOCIOLOGY OF EDUCATION – AN OVERVIEW.** An introductory course, designed to present students with a broad sociological perspective from which to view education and to provide background for subsequent courses in the sociology of education. Topics will include the role of education as an institution in society, the school as a social system, the role of educational personnel and the influence of social variables such as race, sex, ethnicity, and socio-economic status on teaching and learning. 3 credits.

†414-208A, B **THE DEVELOPMENT OF PERSONALITY AND SOCIAL BEHAVIOUR IN THE SCHOOL-AGE CHILD.** This course will deal with personality, social behaviour, and moral development from nursery school up to adolescence. The emphasis will be on aspects of personal and social development that are related to the process of schooling with attention to teacher attitudes and practices in dealing with the problems of children. 3 credits.
Profs. McKay and McCardell

414-214C **CHILD DEVELOPMENT.** The social, emotional, psychological and intellectual growth and development of the young child; guided observation of children; seminars; reports; individual readings. (Not offered 1973). 6 credits.

414-240C **CRAFT COURSE.** A workshop approach intended to show how learning and behavior may be helped by skills developed through craft work; includes use of wood, leather, metals and ceramics as well as demonstrating how to improvise with commonplace materials. This course is usually taken in Phase I. Valid for Diploma in Special Education only. (Not offered 1973). (No credit).

†414-249B **CREATIVITY AND ITS CULTIVATION.** Survey of recent research and theory concerning creativity, with special attention to creativity in school-age children; treats problems of defining and assessing creativity, the relationship between creativity and intelligence, the nature of the creative process and personality and creative behaviour. Methods of enhancing creativity will be examined, emphasizing ways of facilitating creativity in a school setting. 3 credits. Professor Rejskind

414-300A **THE SCHOOL AS AN ORGANIZATION.** Structures and functions of schools at various levels, pre-school to university, and in various segments of society; relationships of schools as organizations to other organizations; school size, complexity of organizational structure; authority patterns, and modes of compliance related to teaching and learning; career patterns in education and patterns of interactions among school personnel. (Not offered 1973-74). 3 credits. *Prerequisite: 414-203 or 414-205.*

†414-304A **MEASUREMENT AND EVALUATION IN EDUCATION.** The purposes of examinations. Causes of complaints about examinations. Equalizing means and dispersions in distribution of marks. Standardized scores. The percentile system. Essay and objective-type examinations. Taxonomies of educational objectives. Validity and reliability: item analysis. 3 credits. Prof. Gougeon

414-305B **NON-VERBAL COMMUNICATION.** An introductory course dealing with non-verbal aspects of behaviour and its interpretation. It will deal also with non-verbal communication in young children and children without speech. Some consideration will be given to the cognition of behaviour acts from drawings, cartoons, and illustrative gestures. 3 credits.

†414-308B **SOCIOLOGY OF THE CLASSROOM.** The classroom as a social system; school or class climate as it influences the learner. The socialization process; social class, racial and ethnic variations in socialization styles. Influences on learning of teacher on child's self-concept and subsequent results in terms of achievement, level of aspiration, and social mobility. 3 credits.

414-314C **DEVELOPMENTAL TESTING OF YOUNG CHILDREN.** Guided observation of children with emphasis on developmental testing. Lectures demonstrations and testing practicum. (Not offered 1973). 3 credits. *Prerequisite: 414-214.*

†414-340A, B **EDUCATION OF EXCEPTIONAL CHILDREN.** Introduction to the education of exceptional children; characteristics, classification, needs of exceptional children; developmental and corrective programs; areas of current research. 3 credits. Profs. Stutt and Wilkinson

414-341A **GENERAL METHODS IN SPECIAL EDUCATION.** Class organization, teaching methods, assessments of educational level, setting objectives, grouping, individual programming, and reporting. 3 credits.

414-342B **ORGANIZATION OF SPECIAL EDUCATION PROGRAMS.** Needs of EMR, slow-learning and emotionally disturbed children: characteristics, school programs, evaluation of progress; integration into the community. 3 credits (Not offered 1973-74). Prof. Stutt

414-343A **INTRODUCTION TO DIAGNOSIS AND ASSESSMENT.** Principles and procedures in the evaluation of pupil growth and achievement. Emphasis on the use and interpretation of tests to be given by the class teacher. 3 credits. Prof. Sokolyk

414-344B **PRACTICUM IN DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS.** A supervised practicum in the use of various tests and measures in learning problems of children; developing prescriptive teaching programs. (Not offered 1973-74). 3 credits. *Prerequisites: 414-343.* Prof. Sokolyk

†414-377A, B **ADOLESCENCE AND THE PROCESS OF EDUCATION.** Development of personality and social behaviour in adolescence. Problems relating to self-concept, academic achievement, relationships with others, and development of values in a changing culture. Some attention to current criticisms of the school as an agency involved in adolescent development. 3 credits. Prof. McKay

†414-394B **COGNITIVE DEVELOPMENT IN THE SCHOOL-AGE CHILD AND ADOLESCENT.** The major orientation of the course will be around Piaget's theory of intellectual development and its relevance for the school, although the work of others in the field will also be considered. (This course should be seen as a complement to either 414-208B, The Development of Personality and Social Behavior in the School-age Child, or 414-377A, Adolescence and the Process of Education. (Not to be taken by students who have taken 414-396). 3 credits. Profs. Floch, Lavers

†414-396B **THE NATURE OF INTELLIGENCE.** The nature, development and measurement of intelligence in a school setting. Intelligence and learning; creativity and intelligence; intelligence and cultural deprivation. The role of the school in developing intelligence. Not open to students who have taken 414-394). 3 credits. Prof. Birch

414-440A **COGNITIVE AND PSYCHOMOTOR PROBLEMS OF EXCEPTIONAL CHILDREN.** Teaching methods appropriate to individual and small group instruction to overcome a variety of learning problems. Emphasis on perceptual difficulties. Concurrent with 414-442. (Not offered 1973-74). 3 credits.

414-441B **BEHAVIOURAL PROBLEMS OF EXCEPTIONAL CHILDREN.** Teaching methods appropriate to the needs of pupils with emotional and behaviour problems. Methods presented will include behaviour modification techniques. 3 credits.

414-442A **PSYCHOLOGY OF LEARNING PROBLEMS.** The Learning Process; personality development; perceptual dysfunction, behaviour disorders and other

handicapping conditions related to learning. (Not offered 1973-74). 3 credits.

414-443B **SCHOOL-HOME-COMMUNITY RELATIONS IN SPECIAL EDUCATION.** Influence of home and community on the child, teacher-parent interviews, reporting, co-operation with hospital clinics, other professionals, etc. (Not offered 1973-74). 3 credits.

414-444B **MATERIALS IN SPECIAL EDUCATION.** A critical examination of materials available for special educational programs, commercial and teacher-made materials; the application of A-V techniques to Special Education. (Not offered 1973-74). 3 credits.

414-445B **VOCATIONAL HABILITATION OF EXCEPTIONAL CHILDREN.** Vocational requirements of non-academic children, vocational preparation as a responsibility of the special class teacher, placement services, follow-up. (Not offered 1973-74). 3 credits. *Prerequisites: 414-340, 414-341.*

414-446B **SPECIAL TOPICS IN THE EDUCATION OF EXCEPTIONAL CHILDREN.** A seminar or workshop approach to selected topics in the field of Special Education. Examples of possible topics include Language Development, Educable Retarded Adolescents, and Behaviour Modification. (Not offered 1973-74). 3 credits. *Prerequisites: 414-340, 414-341.*

414-492A or B **PSYCHOLOGY AND INSTRUCTIONAL DESIGN.** This course draws on the fields of learning theory, developmental psychology, and measurement to focus on the tasks of constructing instructional materials. Areas to be considered include behaviour analysis, concept formation, and test construction. 3 credits.

*415-200A **GOD AND MAN IN DIALOGUE.** An exploration of "Revelation" (especially as conceived by the Second Vatican Council) with particular concern for man's responsibility within the revelational process today. 3 credits.
Prof. Lawlor

*415-204A **MAN BEFORE REALITY.** An exploration of the real in its being and its becoming, in its principles and its causes, in its unity and its diversity, in its truth and its goodness. 3 credits. Sister McIlwaine

*415-205B **PHILOSOPHY OF RELIGION.** An investigation of the meaning of Religion and its relevance to our age. A study of major world religions to determine the basic truths which enable men and women of every age to relate themselves to the Supreme Being and thus achieve complete self-realization. 3 credits. Sister McIlwaine

*415-206B **THE CHURCH AND THE FUTURE.** A reading discussion course which explores, in future perspective, the significance of the Church. What does it mean "to be Church" at a time when new styles of consciousness and new world views are advocated? 3 credits. Prof. Lawlor

*415-207B **WHO IS CHRIST?** An open search for the authentic person of Christ – from Scriptures and present day manifestations. 3 credits.
Prof. Francoeur

*415-208B **IN SEARCH OF MAN.** His place in the world; his role as a knower; his dynamic responses to his environment; his ultimate nature as a human person. 3 credits. Sister McIlwaine

*415-209A **THE SEARCH FOR AUTHENTICITY.** An exploration of contemporary man's search for himself and his God as reflected in the lives and writings of such persons as: Daniel Berrigan, Mohandas Gandhi, Malcolm X, and Elie Wiesel. 3 credits. Prof. Lawlor

*415-290A **GUIDE TO READING THE BIBLE.** A basic introduction to the Judaeo-Christian Scriptures with the emphasis upon reading and existential interpretation. 3 credits. Prof. Hilton

415-341A or B **RELIGIOUS RESPONSE IN THE ELEMENTARY SCHOOL.** In harmony with the discoveries of developmental religious and moral phases in the life of the elementary child, this course explores developing programs and procedures in the elementary school. 3 credits. Prof. Francoeur

*415-391A **A THEOLOGY OF PROCLAMATION.** Man's responsibility and involvement in realizing the Divine Plan; how God chooses to depend upon man for the growth of His People towards Him. 3 credits. Prof. Francoeur

415-392B **GUIDING THE RELIGIOUS RESPONSE.** An introduction to the science of the guidance of young people through the slow developmental patterns of grasping life's meaning and of directing their lives in consequence. Attention is given to the importance of the teacher's own self-image. 3 credits. Prof. Francoeur

*415-394A **PHILOSOPHY OF GOD.** Starting with man's experience of being, an exploration of fundamental truths concerning the existence and the nature of God. The study draws extensively upon the thought of Thomas Aquinas and considers such basic issues as freedom and evil in relation to the knowledge and goodness of God. 3 credits. Sister McIlwaine

*415-395A **CHRISTIAN VALUES AND HUMAN ACTION.** A philosophical critical inquiry into the relationship between belief and conduct oriented towards the teacher and his role in moral education. Investigation of the ethical nature of the human act and the natural law as the basis for morality. 3 credits. Sister McIlwaine

*415-396A **SEMINAR IN CONTEMPORARY THEOLOGY I.** A reading seminar course in which current theological problems are discussed. Specific topics may differ from year to year. 3 credits. Prof. Lawlor

*415-397A **VARIETIES OF CHRISTIAN WITNESS.** An exploration of divergent paths of Christian Witness as exemplified in the lives and writings of Thomas Merton, contemplative-mystic, and Teilhard de Chardin, philosopher-scientist. 3 credits. Profs. Lawlor and McIlwaine

†415-398B **PHILOSOPHY OF CATHOLIC EDUCATION.** An exploration of the philosophy of Catholic education, its relation to other philosophical systems, and its relevance in the world today. 3 credits. Prof. Scott

†415-399B **THE CATHOLIC SCHOOL OF THE FUTURE.** A projection into the future — new models for Catholic schools in the Province of Quebec; a consideration of the identity of the Catholic school, the Protestant school, and the Neutral school of the future, in relation to the expectations of parents, students, teachers, and the larger community. 3 credits. Prof. Scott

*415-491A or B **CATECHETICAL THEMES.** Following upon exploration of the basics of guiding the Religious Response, the student is afforded the opportunity of enriching his background by exploring great catechetical themes in the light of the newest theological insights. 3 credits. *Prerequisite: 415-341 or 415-392.* Prof. Francoeur

*415-494B **ETHICS IN PRACTICE.** Fundamental principles of ethics applied to specific moral issues. The questions investigated are topics which form a part of or are related to the high school religion curriculum, or which are of particular concern to the high school student today: abortion; drugs; protests; education; nuclear war; disarmament and the like. 3 credits. *Prerequisite: 415-395.* Prof. McIlwaine

*415-495B **THE EUCHARIST.** Biblical concepts of covenant and covenant rites, especially of shared blood and shared food, studies in relation to significance of the Last Supper; Christ as covenant; Eucharist as covenant meal and its meaning in the modern context. 3 credits. Prof. Lawlor

415-503B **RELIGIOUS RESPONSE IN THE SECONDARY SCHOOL — AN ADVANCED STUDY.** This course aims to examine in depth those programs currently under experimentation in our high schools. Serious study is to be made of adolescent religious response and those techniques, attitudes and personal approaches that may best enable the teacher to guide this response. 3 hours. Prof. Francoeur

415-547A or B **RELIGIOUS RESPONSE IN THE ELEMENTARY SCHOOL.** Exploration of the content and direction of moral and religious guidance in the elementary school. Emphasis is placed on the development needs of the child. 3 hours. Prof. Francoeur

415-571D **RELIGIOUS RESPONSE IN THE SECONDARY SCHOOL.** A study of the scope and procedures of the psycho-pedagogy of religious response for secondary school students intended for those planning to specialize in Catholic moral and religious education at the secondary school level. 3 hours. Prof. Francoeur

415-573A **LIVING WITH INSIGHT.** Examination of the shaping of contemporary living in the light of the guiding principle of agape in Scripture. The starting point will be man's experience in today's realities. 3 hours, 1 term. Sister McIlwaine

415-594A **PHILOSOPHY OF CATHOLIC EDUCATION.** An exploration of the philosophy of Catholic education, its relation to other philosophical systems, and its relevance in the world today. 3 hours, 1 term. Prof. Scott

415-595B **PHILOSOPHY OF CATHOLIC EDUCATION.** A study of the evolution of Christian thought and its effect on Christian education. Some questions to be considered are: modern trends in theology, the "new" morality, values in education, religious and moral education in the 1970's. 3 hours, 1 term. Prof. Scott

*417-241A **BACKGROUND SCIENCE FOR ELEMENTARY SCHOOL TEACHERS.** This course presents science as a means of exploring and explaining our environment. A study of some of the fundamental concepts common to most elementary programs — an elective. 3 credits. Prof. Francoeur

417-312B **PRIMARY SCIENCE.** Methods of providing children at the nursery school and kindergarten levels with useful learning experiences related to their natural environment. 3 credits. Mrs. Wolfe

417-372A **SECONDARY SCIENCE CURRICULUM AND INSTRUCTION.** This course relates to directed observations in secondary schools and includes the study of general objectives, curriculum trends, and the planning of teaching strategies and pupil experiences needed to promote the learning of the skills, concepts and processes of science. Prerequisite: A minimum of 18 credits in post-secondary science. 3 credits. Prof. Francoeur

417-405A **ECOLOGICAL FEATURES OF OUR NATURAL ENVIRONMENT.** A lecture, laboratory and field course to train teachers in the principles and practices of field biology and nature tours. The observation and identification of various organisms and a study of their ecological relationships in the web of life (Not offered 1973-74). Field trips: 3 credits. Staff

417-406B **ECOLOGICAL PROBLEMS IN OUR ENVIRONMENT.** A modern study of environmental problems for all teachers. The role of man in the web of life in relation to conservation, the population explosion, waste disposal, sewage treatment, air and water pollution, chemical and radiation pollution. (Not offered 1973-74). 3 credits. Staff

417-442B **CURRICULUM AND INSTRUCTION IN ELEMENTARY SCIENCE.** A survey of modern curricula and teaching strategies in use at the elementary school levels and the design of suitable exploratory activities using simple equipment to give children some appreciation of the nature of science. Offered in alternate years, will be offered in 1973-74. 3 credits. Mrs. Wolfe

417-443A or B **PERSPECTIVES ON ELEMENTARY SCIENCE EDUCATION.** A course to provide a deeper perspective of modern elementary science education through a study of the active learning approach, modern elementary science projects and research — an elective. (Not offered 1973-74). 3 credits. *Prerequisite 417-442 or equivalent.* Profs. Francoeur and Searles

417-522A or B **SCIENCE CURRICULUM AND INSTRUCTION — EARLY CHILDHOOD.** 2 hours, 1 term. Prof. Francoeur and Mrs. Wolfe

417-532A or B **SCIENCE CURRICULUM AND INSTRUCTION — LATER CHILDHOOD.** 2 hours, 1 term Mrs. Wolfe

417-573B **SCIENCE CURRICULUM AND INSTRUCTION (ADVANCED) — SECONDARY SCHOOL.** 3 hours, 1 term. Prof. Francoeur

417-575D **GENERAL SCIENCE CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** 3 hours, 2 terms. Profs. Landry and Francoeur

417-576D **BIOLOGY CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** 3 hours, 2 terms. Prof. Francoeur

417-577D **CHEMISTRY CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** 3 hours, 2 terms. Prof. Francoeur

417-578D **PHYSICS CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** 3 hours, 2 terms. Prof. Landry

418-572A **CURRICULUM AND INSTRUCTION IN HOME ECONOMICS.** The nature and purpose of the high school curriculum in Home Economics; knowledge and practical experience of the various techniques of teaching in all areas of that curriculum. 3 hours, 1 term.

418-573B **CURRICULUM AND INSTRUCTION IN HOME ECONOMICS.** A study of various types of instructional areas for Home Economics; necessary equipment; planning of budgets and keeping of records; examination of and practice in preparing evaluation and measurement devices. 3 hours, 1 term. *Prerequisite(s): Course in C & 1: 418-572A.*

418-574B **ADVANCED STUDY IN HOME ECONOMICS C & 1.** A seminar course to provide in depth study in areas of the Home Economics Curriculum and Instruction selected to suit interests of the students. 3 hours, 1 term. *Prerequisite(s): 418-572A and approval of the instructor.*

*421-301A **LIVING WITH QUESTIONS.** A survey of Old and New Testament literature together with current ethical and philosophical questions which arise out of such study and which confront teachers in modern society. 3 credits. Prof. MacNeill

421-542A or B **HUMAN AND RELIGIOUS VALUES IN THE ELEMENTARY SCHOOL.** Living together in the modern world raises problems of behaviour and belief. This course explores ways in which teachers may help children in elementary school to appreciate each other's traditions and values and to realize their own identity within their own life circumstances. 3 hours, 1 term. Prof. MacNeill

421-572A or B **HUMAN AND RELIGIOUS VALUES IN THE SECONDARY SCHOOL.** How can children discern value within the flux of experience? By what means can they develop value systems that are increasingly their own and increasingly mature? Through discussion and through examination of materials, students will attempt to increase their understanding of moral and spiritual development. 3 hours, 1 term. Prof. MacNeill

*426-204A, B **DRAWING.** Development of sound draughtmanship; through the study of organic forms and the human figure in various media. 3 credits.

*426-205B **PAINTING II.** Investigation of media tools, techniques primarily through studies of natural forms, the human figure. 3 credits. *Prerequisite: 204A, B.*

*426-304A **PAINTING III.** Continuation of prerequisite 205B.

*426-305A **PAINTING IV.** Continuation of prerequisite 304A.

*426-404A, B **PAINTING V.** Major problems in graphic expression – the human figure, landscape, natural or manufactured objects. 3 credits. *Prerequisite: 305B.*

*426-405B **PAINTING VI.** The student will be required to work in a variety of sizes and materials. Continued exploration of the elements of visual art. 3 credits. *Prerequisite: 404A.*

*426-296A **BASIC DESIGN.** Exploration of the basic elements of visual art through two dimensional composition and three dimensional constructions. Investigation of materials and tools and the processes of manipulating and relating materials. 3 credits.

*426-297B **DESIGN II.** Further rendering of two and three dimensional compositions (296A) investigating the potential of basic geometric and organic forms, spatial relationships and environment. 3 credits. *Continuation of prerequisite 296A.*

*426-298B **APPLIED DESIGN.** A study of historical stages of furniture and interior design through lectures, museum studies, field trips, assignments both written and practical. 3 credits. *Prerequisite: 426-296A.*

*426-396A **DESIGN III.** Application of learning and skills to more sophisticated problems of design. Consideration of design in relation to practical aspects of visual communication. 3 credits. *Prerequisite: 426-297.*

*426-397B **DESIGN IV.** Advanced work in the development of perception and aesthetic presentation. Through projects and assignments students will be encouraged to pursue problems of design pertinent to their own interests. 3 hours, 3 credits. *Prerequisite: 426-396A.*

*426-496A **SCULPTURE I.** Designed for students individually to encourage and develop personal aptitudes; major problems of 3 dimensional design in new and/or traditional materials. 3 credits. *Prerequisite: 426-297.*

*426-497B **SCULPTURE II.** Continuation of Sculpture I. 3 credits.

*426-206A, B **INTRODUCTION TO GRAPHICS.** An introduction to some woodcuts, a practical study of the various elementary processes. 3 credits.

*426-207A, B **GRAPHICS II.** Study in further graphic media techniques. These may include line engraving, dry point, relief etching, intaglio and related processes. 3 credits. *Prerequisite: 426-206.*

*426-394A, B **GRAPHICS III.** Continuation of studies of graphic techniques. These may include variations of previously learned techniques, silk screen, viscosity, printing, multiple plate work, etc. 3 credits. *Prerequisite: 426-207.*

*426-395A, B **GRAPHICS IV.** Advanced studies in various graphic media. The student will be expected to be familiar with standard processes studied in the preceding courses. At this stage the student should begin to concentrate on developing a personal style, incorporating the necessary techniques to make his personal statement. 3 credits. *Prerequisite: 426-394.*

*426-494A, B **GRAPHICS V.** An extension of skills learned in Graphics I-IV. Techniques explored may include engraving, silk screen, relief etching, intaglio, collography, dry point, combinations of printing. The student will be expected to explore those areas which most closely correspond to his particular graphics style. 3 credits. *Prerequisite: 426-394.*

*426-495A, B **ADVANCED GRAPHICS VI.** A further extension of skills learned in graphics I-V. The student is expected to have mastered basic graphic skills and be able to work independently. A competent development of personal style experimentation with, and control over the chosen medium is expected. 3 credits. *Prerequisite: 426-494.*

*426-208A or B **INTRODUCTION TO CERAMICS.** A consciousness of the medium is developed through basic ceramic processes: hand building experiences and introduction to wheel thrown constructions. 3 credits. **Professor Studham**

*426-209A or B **CERAMICS II.** A continuation and concentration of wheel projects. Elementary clay and glaze preparations. 3 credits. *Prerequisite: 208A or B.* **Professor Studham**

*426-300A or B **CERAMICS III: GLAZES.** Chemistry of glazes, formation of slips, engobes and glaze. Firing and maintenance of kiln and equipment. 3 credits. *Prerequisite: 209A or B.* **Professor Studham**

*426-309B **CERAMICS IV.** Chemistry of glazes. Emphasis placed on lab work. Firing and maintenance of kiln and equipment. 3 credits. *Prerequisite: 426-300.* **Professor Studham**

*426-408A, B **CERAMICS V.** Advanced work in ceramics exploration of individual problems in given medium on glaze enamelling and lustreware. 3 credits. *Prerequisite: 426-309.* **Professor Studham**

*426-409B **CERAMICS VI.** Continuation of exploration of individual problems working all known media. 3 credits. *Prerequisite: 426-408.* **Professor Studham**

*426-398A **EARLY CANADIAN ART HISTORY.** The visual environment, European sources and influences as revealed through a comprehensive survey of

architecture, painting and applied arts from 1600 to 1867. 3 credits.
Professor Papke

*426-399B **CANADIAN ART II.** The growth of Canadian art as evidenced through the changing visual environment from 1867 to the present. 3 credits. *Prerequisite: 398A.*
Professor Papke

*426-241A **BASIC ART MEDIA.** A course to acquaint the student with basic art media in two and three dimensions and to provide for involvement and in-depth experience in the creative process. This course is a Prerequisite for Art Methods in elementary school. 3 credits.

426-322A or B **ART CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** The philosophy and psychology of child art. The teacher's role in the development of the child's visual awareness and creativity. 3 credits. *Prerequisite: 426-241A or equivalent.*

426-332A or B **ART CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** To prepare teachers to understand and guide the visual art of children from nine to twelve years of age. 3 credits. *Prerequisite: 426-241A or equivalent.*

426-522A, B **ART CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** A study of child art and the teacher's role in the art program of the primary grades – written and practical assignments related to classroom activities. 3 hours, 1 term.
Professor Jaques

426-532B **ART CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** A study of child art closely related to the work in the classroom. Activities in two and three dimensions acquaint the student with media and techniques suitable for children in the senior grades of elementary school. 3 hours, 1 term.
Professors Watling and White

426-572D **ART CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** Program development, techniques and problems of teaching art in the secondary school. Work closely related to field experience and to the problems of the developing young pupil. 3 hours, 2 terms. *Prerequisites: B.F.A. or equivalent. Interview and presentation of work.*
Professors Papke and Studham

426-573A **ART CURRICULUM AND INSTRUCTION – ADVANCED – SECONDARY SCHOOL.** An examination of the relationship of the visual arts to the secondary school curriculum and the development of the adolescent personality. 3 hours, 1 term. *Prerequisite: Must be registered in 572D.*

426-211A or B **ART FOR NURSERY-KINDERGARTEN TEACHERS.** Exploration of a variety of art media suitable for the kindergarten child; relationships of line, colour and texture; development of manipulative skills and the child's perceptual awareness of his environment. 3 credits. *Prerequisite: 426-241.*

427-223 **READING INSTRUCTION – EARLY CHILDHOOD.** Methods and materials for the teaching of reading in the primary grades. 3 credits.

427-224C **CORRECTIVE READING INSTRUCTION – EARLY CHILDHOOD.** Reading problems at a readiness and basic decoding level presented in a practicum format covering classroom diagnosis and remediation. 3 credits.

427-228B **READING AND LANGUAGE ARTS – CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** Reading and language arts curriculum related to current theories and strategies of learning: Examination of resource materials and aids to teaching and evaluation at the primary level. 3 credits.

427-233C **READING INSTRUCTION – LATER CHILDHOOD.** Methods and materials for the teaching of reading in the upper elementary grades. 3 credits.

427-234C **CORRECTIVE READING INSTRUCTION – LATER CHILDHOOD.** Reading problems beyond the readiness and basic decoding level presented in a practicum format covering classroom diagnosis and remediation. 3 credits.

427-238B **READING AND LANGUAGE ARTS – CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** Reading and language arts curriculum

studied in relation to current theories and strategies of learning for the later years of the elementary school. Resource materials and aids to teaching and evaluation examined. 3 credits.

427-305A **EXPERIENCES IN COMMUNICATIONS I.** Personal development of students as communicators; involvement of the imagination in individual and group projects in language and in another chosen medium of communication; analysis of experiences in projects in relation to general problems of communication. Courses given in French or English. 3 credits. **Staff**

427-327C **CREATIVE DRAMATICS AND CHILDREN'S LITERATURE.** Experiences in characterization, story making, story dramatization; an exploration of the elements of drama and dramatic literature at the kindergarten level. 3 credits. *Prerequisite: 427-328.*

427-328C **CREATIVE MOVEMENT AND DRAMATICS.** Experiences in creative drama and the dynamics of space; body movement, improvisation, creative problem solving, control and release of emotional energy. 3 credits.

†427-343A or B **ADVANCED READING INSTRUCTION – ELEMENTARY SCHOOL.** A critical study of materials in reading instruction with adaptations to particular needs of children. Classroom diagnosis of reading problems in the context of the total curriculum. 3 credits. *Prerequisite: 427-228B or 427-238B.*

427-344A or B **CHILDREN'S LITERATURE.** Selection and use of literature suitable for children in the elementary school. 3 credits.

427-345Y **LITERATURE FOR YOUNG ADULTS.** Selection and use of literature for the differing abilities and interests of high school students. 3 credits.

427-371A **SECONDARY ENGLISH CURRICULUM & INSTRUCTION.** Examination of appropriate materials related to the high school English programs; exploration of various techniques of teaching Literature, Drama, Film, and Language Arts. 3 credits. **Profs. Harley and O'Hara**

427-374A **LANGUAGE IN THE SECONDARY SCHOOL.** A study of language activity (English) among secondary school students: their growth in language competence; oral and written modes in relation to learning and to personal development. 3 credits. *Prerequisite(s): An approved language or linguistics course. (Students are guided in their choice of these in US1 counselling at registration time.)* **Professor Dias**

427-474B **PERSPECTIVES ON SECONDARY ENGLISH EDUCATION.** Seminar on special interest areas in the Teaching of English in the light of contemporary theories and experiments for students who have completed a basic Curriculum & Instruction course and have had some classroom experience. 3 credits. *Prerequisite: 427-371A.* **Profs. Harley and O'Hara**

427-505D **LANGUAGE AND OTHER MEDIA.** Writing, speaking and non-linguistic forms of communication are practised and analysed with a view to each student developing, through personal experience and study, a theory of communication applicable in teaching. Course given in English or French. 2 hours, 2 terms. **Staff**

427-522D **CURRICULUM AND INSTRUCTION IN READING AND LANGUAGE ARTS – EARLY CHILDHOOD.** Reading and language arts curriculum studied in relation to current theories and strategies of learning. Resource materials and aids to teaching and evaluation at the primary level examined. 3 hours, 2 terms. **Staff**

427-523C **READING INSTRUCTION IN THE HIGH SCHOOL.** Methods and materials for the teaching of developmental reading at the high school level. 3 credits.

427-532D **CURRICULUM AND INSTRUCTION IN READING AND LANGUAGE ARTS – LATER CHILDHOOD.** Reading and language arts curriculum studied in relation to current theories and strategies of learning for the later years of the elementary school. Resource materials and aids to teaching and evaluation examined. 3 hours, 2 terms.

427-533C **INTEGRATED LANGUAGE ARTS PROGRAMS.** Methods and materials for integrating reading, listening, writing, speaking aspects of communications instruction. 3 credits.

427-572D **ENGLISH CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** An exploration of approaches to the teaching of language, literature, creative writing, and dramatics in the secondary school. 3 hours, 2 terms. **Profs. Bockus, Dias, Harley, O'Hara**

427-573B **ENGLISH CURRICULUM DEVELOPMENT – ADVANCED.** An investigation into the theoretical bases of English teaching and a study of recent research into high school English curriculum and instruction. 1 hour. **Profs. Bockus and O'Hara**

427-576A or B **READING IN THE HIGH SCHOOL.** An exploration of reading instruction in secondary programs in the content fields; survey of remedial and developmental reading instruction throughout the elementary and secondary schools, together with review of research in secondary reading. 3 hours, 1 term. **Professor Gardner**

427-577C **CORRECTIVE READING INSTRUCTION AT THE HIGH SCHOOL LEVEL.** Reading problems found in remedial classes at the high school level presented in a practicum format covering diagnosis and remediation appropriate for remedial classrooms. 3 credits.

427-594A or B **CREATIVE DRAMATICS FOR THE CLASSROOM.** A participatory course in creative drama and the use of improvisational techniques in the pursuit of child development. 3 hours, 1 term. **Prof. Hearsey**

427-595A or B **IMPROVISATION & THEATRE ARTS FOR THE CLASSROOM.** A course beyond the introductory level to provide further perspectives on the teaching of drama and the teaching of improvisation. Instruction and practice in Play production will be included. 3 credits, 1 term. *Prerequisite: 427-594A or B.*

*428-241A **BACKGROUND MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS.** A course specially designed for elementary school teachers to provide the basic foundations, insight and understanding of the Quebec modern elementary mathematics program. Recommended for all elementary school teachers – an elective. 3 credits. **Profs. Modafferi, Lofthouse**

428-322B **CURRICULUM AND INSTRUCTION IN MATHEMATICS – EARLY CHILDHOOD.** 3 credits. **Prof. McNicol**

428-332B **CURRICULUM AND INSTRUCTION IN MATHEMATICS – LATER CHILDHOOD.** 3 credits. **Prof. Scott**

428-372A **SECONDARY MATHEMATICS CURRICULUM AND INSTRUCTION.** This course relates to directed observations in secondary schools and includes the study of the general objectives and curriculum trends, as well as the learning problems, teaching strategies and mathematical concepts encountered in the High School curriculum. 3 credits. *Prerequisites: A minimum of 18 credits in Post Secondary Mathematics.* **Prof. Modafferi**

428-443A or B **PERSPECTIVES ON ELEMENTARY MATHEMATICS EDUCATION.** A course to provide a deeper perspective of modern elementary mathematics education through a study of the active learning approach, use of structured materials, modern mathematics projects and research. Separate sections for early and later childhood if enrolment permits – an elective. 3 credits. *Prerequisite: 428-322 or 428-332 or equivalent.* **Profs. Scott, McNicol**

*428-471A **BACKGROUND MATHEMATICS FOR SECONDARY TEACHERS.** A course on the nature of mathematics stressing the relationships in its basic structure and providing some of the historical, philosophical and logical bases of the mathematics of the secondary school. (Recommended to all students expecting to teach secondary mathematics). 3 credits. **Prof. Purdy**

428-474D **COMPUTING AND PROBLEM SOLVING FOR HIGH SCHOOL TEACHERS.** The history and basic principles of digital computing for teachers, including computer systems, data storage, the use of various

computer languages specially FORTRAN, methods for solving problems, computer assisted instruction, data processing, statistics and their uses for the teacher, practical experience with a time sharing system for a remote terminal. (Not offered 1973-74). 6 credits.

428-522A or B — **MATHEMATICS CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** 2 hours, 1 term. Profs. McNicol and Scott

428-532A or B — **MATHEMATICS CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** 2 hours, 1 term. Profs. Lofthouse and Modafferi

428-572D — **MATHEMATICS CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** 3 hours, 2 terms. Profs. Purdy, Whitwell and Modafferi

428-573A — **MATHEMATICS CURRICULUM AND INSTRUCTION (ADVANCED) – SECONDARY SCHOOL.** 3 hours, 2 terms. Prof. Whitwell

429-200A, B — **CLASS PIANO FOR CLASSROOM TEACHER.** Keyboard experiences through group piano lessons utilizing the multiple key approach: transposition by ear; improvising simple chordal accompaniments for classroom singing, and sight reading. Non credit.

*429-201B — **BASIC MUSICIANSHIP.** Introduction to the elements of music theory through techniques of aural training, sight singing, keyboard, and written applications to be presented as the classroom teacher should teach such elements of music to elementary school students. "Lab work at the keyboard." 3 credits.

429-212A, B — **MUSIC FOR NURSERY-KINDERGARTEN TEACHERS.** Contemporary methods in music education at the kindergarten level; development of musical skills through groups and individual practice sessions. 3 credits.

429-232C — **MUSIC CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** Materials and methods in providing experiences in music for grades four to six by class participation in listening, singing, playing instruments, moving, creating and reading music. 3 credits. (Not offered 1973).

429-322A, B — **MUSIC CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** Understanding of the musical development of children at this level by class participation in listening, singing, playing instruments, creating and moving to music. Materials and methods of planning the above experiences. 3 credits.

429-332A, B — **MUSIC CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** Materials, methods, planning and organizing of musical experiences for later childhood classes through class participation in singing, playing, moving, creating, reading music and listening activities. 3 credits.

429-522A, B — **MUSIC CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** Understanding of the musical development of children at this level by class participation in listening, singing, playing instruments, creating, and moving to music. Materials and methods of planning the above experiences. 2 hours, 1 term.

429-532A, B — **MUSIC CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** Materials, methods, planning, and organizing of musical experiences for later childhood classes through class participation in singing, playing, moving, creating, reading music, and listening activities. 2 hours, 1 term.

429-542A — **MUSIC CURRICULUM AND INSTRUCTION – ELEMENTARY.** Materials and methods of teaching elementary music. Includes directed observation and videotaped class participation and teaching in an elementary school. 2 hours, 1 term.

429-572B — **MUSIC CURRICULUM AND INSTRUCTION – SECONDARY.** Materials and methods of teaching music in the high school. Includes directed observation and micro-teaching in a high school situation. 2 hours, 1 term.

430-322A — **SOCIAL STUDIES CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** Social studies curriculum. Theories and strategies of learning. Data and resource materials. Evaluation procedures as applied to the primary level. 3 credits.

430-332A **LOCAL AND COMMUNITY STUDIES.** The place and purpose of community studies in the Quebec elementary social science curriculum. Practical experiences in designing teaching strategies which use the social and economic environment as a medium for learning. Pupil evaluation procedures. 3 credits.
Mr. Bradley

430-333B **COMPARATIVE SOCIAL STUDIES.** Methods of teaching geographical and historical case studies as a means of deepening the elementary school child's understanding of the major human activities in his own social and economic environment. 3 credits. *Prerequisite: 430-332A.*
Mr. Bradley

430-372A **GEOGRAPHY CURRICULUM AND INSTRUCTION – HIGH SCHOOL.** The Quebec high school geography curriculum. Syllabus structure. The development and practice of methods in geography teaching. 3 credits.
Professor Burpee

430-375A **HISTORY CURRICULUM AND INSTRUCTION – HIGH SCHOOL.** The Quebec high school history curriculum. Theories of course structure. Development and practice of teaching strategies in history. 3 credits.
Professor Bain

†430-404B **VALUE ANALYSIS IN THE SOCIAL SCIENCES.** An examination of the objectives of value analysis. Teaching strategies for valuing in the social sciences with particular reference to social issues and environmental problems. An education elective open to students in elementary and secondary options. 3 credits. *Prerequisites: 430-322A or 430-332A or 430-372A or 430-375A.*

430-453C **FIELDWORK IN SCHOOL GEOGRAPHY.** Practical experience in developing and evaluating fieldwork assignments for use with high school geography classes in both rural and urban settings. 3 weeks summer field study; 3 credits. *Prerequisite: 430-372A or permission of the department.*
Professor Burpee

430-473B **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN GEOGRAPHY.** An investigation into the theoretical bases of geography teaching and an exploration of recent research into high school geography curriculum and instruction. 3 credits. *Prerequisite: 430-372A.*
Professor Burpee

430-476B **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN HISTORY.** An exploration of the theoretical bases of history teaching. Study and analysis of recent research in high school history curriculum and instruction. 3 credits. *Prerequisite: 430-375A.*

430-522B **SOCIAL STUDIES CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** The nature and structure of social studies. Learning processes and teaching strategies. Data collection, resource materials and evaluation procedures. Throughout the course students will be encouraged to observe their own environment and to relate their findings to the social studies course. 2 hours, 1 term.

430-532A **LOCAL AND COMMUNITY STUDIES – LATER CHILDHOOD.** Objectives and structure of the Quebec elementary social science curriculum. Development of instructional skills and learning strategies in environmental studies: systematic observation, interviewing, opinion polling, sample surveying and simple data analysis. Pupil evaluation procedures. 2 hours, 1 term.
Profs. Burgess, Burpee and Mr. Bradley

430-533B **COMPARATIVE SOCIAL STUDIES – LATER CHILDHOOD.** The creative development of instructional skills and learning strategies in using historical and geographical comparative case studies as means of deepening the elementary school child's understanding of the major human activities in his own social and economic environment. 2 hours, 1 term. *Prerequisite: 430-532.*
Prof. Maconochie and Mr. Bradley

430-539B **NEW PERSPECTIVES IN SOCIAL STUDIES CURRICULUM – ELEMENTARY.** An advanced course in elementary school social studies curriculum and instruction to include philosophical and psychological foundations of "the new social studies"; content, process and values as instructional

objectives. Creative development of methods and teaching materials. (Not offered 1973-74). 3 hours, 1 term. *Prerequisite: 430-533B or permission of the department.*

430-572D **GEOGRAPHY CURRICULUM AND INSTRUCTION – HIGH SCHOOL.** An examination of geography as a vehicle for education. Analysis of the Quebec and other geography curricula. Methods and teaching strategies. The geography laboratory. Field studies. Evaluation. 3 hours, 2 terms. **Prof. Burpee**

430-573B **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN GEOGRAPHY.** An investigation into the theoretical bases of geography teaching and an exploration of recent research into high school geography curriculum and instruction. 3 hours, 1 term. **Prof. Burpee**

*430-575D **HISTORY CURRICULUM AND INSTRUCTION – HIGH SCHOOL.** An analysis of the content of Quebec and other high school history curricula. Development of skills and abilities in the teaching of history through class exercises and micro-teaching techniques. Practice in devising such teaching and learning strategies as exposition, discussion, group studies, independent studies, role playing, simulations and field work. 3 hours, 2 terms. **Prof. Bain**

430-576B **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN HISTORY.** An investigation into the theoretical bases of history teaching and a study of recent research into high school history curriculum and instruction. 3 hours, 1 term. **Prof. Smith**

430-579D **NEW PERSPECTIVES IN SOCIAL STUDIES CURRICULUM – HIGH SCHOOL.** Foundations of "the new social studies". Theoretical course structures. Content and process in political, sociological and economics education. Modes of inquiry in the disciplines and the learner as researcher. The local community as a source of social science data and as a field of study. 3 hours, 2 terms. *Prerequisite: Permission of the department.* **Prof. Bain**

*431-301A or B **LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING.** An introduction to general and contrastive linguistics: a study of the areas of interference in the learning of a second language, phonology, lexis and grammar. Examination and preparation of teaching, remedial and testing materials. 3 credits. **Prof. Buteau**

431-304A or B **QUEBEC CULTURAL CONTENT OF SECOND LANGUAGE PROGRAMS.** Can be taken for 431-573A. Study of the Quebec socio-cultural scene; contacts with francophone cultural and educational institutions; preparation of class material related to Quebec. 3 credits. **Prof. Lobelle**

431-322A **TEACHING FRENCH AS A SECOND LANGUAGE – EARLY CHILDHOOD.** For description see 431-522. **Prof. Berthault**

431-332A **TEACHING FRENCH AS A SECOND LANGUAGE – LATER CHILDHOOD.** For description see 431-532. **Prof. Berthault**

431-342A **TEACHING FRENCH AS A SECOND LANGUAGE – ELEMENTARY SCHOOL.** For description see 431-542. **Prof. White**

431-345A or B **THE BILINGUAL CLASS.** For description see 431-545. 3 credits. **Prof. Lobelle**

431-347A **TEACHING ENGLISH AS A SECOND LANGUAGE – ELEMENTARY SCHOOL.** For description see 431-547. 3 credits. **Prof. Watters**

431-357A **TEACHING ENGLISH AS A SECOND LANGUAGE – SECONDARY SCHOOL.** For description see 431-558. 3 credits.

431-372A **TEACHING FRENCH AS A SECOND LANGUAGE – SECONDARY SCHOOL.** For description see 431-572D. 3 credits. **Prof. Provencher**

431-373A, B **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN SECOND LANGUAGES.** Additional background readings in Second Language Curriculum. 3 credits. *Prerequisites: Any one of 431-342, 372, 347, 357, 378 or 379.*

431-378A **LATIN CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** For description see 431-578. 3 credits.

431-379A **MODERN LANGUAGE CURRICULUM AND INSTRUCTION (GERMAN, ITALIAN, SPANISH) – SECONDARY SCHOOL.** For description see 431-579. 3 credits.

431-501A, B, D **LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING.** Can be taken for 431-573A. An introduction to general and contrastive linguistics: a study of the areas of interference in the learning of a second language; phonology, lexis and grammar. Examination and preparation of teaching, remedial and testing materials. 3 hours, 1 term or 1½ hours, 2 terms.
Prof. Buteau

431-504A, B, D **QUEBEC CULTURAL CONTENT OF SECOND LANGUAGE PROGRAMS.** Can be taken for 431-573A. Study of the Quebec socio-cultural scene; contacts with francophone cultural and educational institutions; preparation of class material related to Quebec. 3 hours, 1 term or 1½ hours, 2 terms.
Prof. Lobelle

431-522B **TEACHING FRENCH AS A SECOND LANGUAGE – EARLY CHILDHOOD.** Principles of second language teaching. Objectives and Curriculum, teaching techniques and materials. Lesson planning and practice. 2 hours, 1 term.
Prof. Berthault

431-532A **TEACHING FRENCH AS A SECOND LANGUAGE – LATER CHILDHOOD.** 2 hours, 1 term.
Prof. Berthault

431-540A **ANIMATION TECHNIQUES.** Exploration and demonstration of animating procedures; techniques to enliven second language learning and to integrate it into the child's general development. Workshops conducted in cooperation with other departments: music, media, art, etc. 1 hour, 1 term.

431-544D **TEACHING FRENCH AS A SECOND LANGUAGE – ELEMENTARY SCHOOL.** Principles of second language teaching. An intensive study of the curriculum: objectives and development; lesson planning, micro-teaching; second language teaching strategies and techniques. 3 hours, 2 terms.
Prof. White

431-545B **THE BILINGUAL CLASS.** A study of Bilingual Education Programs, their rationale and format; observation of bilingual classes; training in teaching other subjects in French. 2 hours, 1 term.

431-547B **TEACHING ENGLISH AS A SECOND LANGUAGE – ELEMENTARY SCHOOL.** Objectives and Curriculum; study of modern English in a second language perspective; teaching techniques and materials; tutoring in ESL situations. 2 hours, 1 term.
Prof. Watters

431-558D **TEACHING ENGLISH AS A SECOND LANGUAGE – SECONDARY SCHOOL.** Descriptive view of ESL situations in Quebec; objectives and curriculum; study of modern English phonology and structure in a second language perspective. 3 hours, 2 terms.
Prof. Watters

431-572D **TEACHING FRENCH AS A SECOND LANGUAGE – SECONDARY SCHOOL.** Principles of second language teaching. Objectives and Curriculum; language skills at secondary level; teaching and evaluation. Examination and preparation of class materials. Lesson planning. Training in micro-teaching situations. 3 hours, 2 terms.
Prof. Provencher

431-573A **IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN SECOND LANGUAGES.** Examination of new experimental approaches to second-language teaching: immersion, individualized instruction, modular scheduling, team-teaching, programmed instruction, language laboratory, etc. Individual and group research projects. 3 hours, 1 term.
Prof. Buteau

431-578D **LATIN CURRICULUM AND INSTRUCTION – SECONDARY SCHOOL.** Objectives and Curriculum. Examination of textbooks and materials. Study of Roman Civilization. Latin poetry and Latin works in translation. 3 hours, 2 terms.

431-579D **MODERN LANGUAGE CURRICULUM AND INSTRUCTION (GERMAN,**

ITALIAN, SPANISH) – SECONDARY SCHOOL. Principles of second language teaching. Contrastive analysis of phonology, morphology, syntax and lexis. Teaching techniques and materials. Training in micro-teaching situations. Lesson planning and testing. 3 hours, 2 terms. **Prof. Lobelle**

†432-204A, B **EDUCATIONAL MEDIA I.** Application of educational media to the elementary and secondary school teaching and learning situation; rationale and underlying principles, the sources, selection, production, effective utilization and evaluation of the media. (lab fee.) 3 credits.
Profs. Jones and A. Pollard

432-205A, B **PROJECTED MEDIA II.** Educational significance of various projected media; 16mm films, 8mm films, 35mm slides, multi-media presentations, the utilization of such media, teacher or student production. (lab fee.) 3 credits.
Prof. R. Pollard

432-206C **CHILDREN'S LITERATURE.** The development of media designed for children from the first books written for children to contemporary materials including books, magazines, films and recordings. (Not offered 1973). 3 credits.

432-304C **EDUCATIONAL MEDIA II.** This course is intended for the individual with some experience in educational media. Topics include communication theory, implications of learning theory for the media specialist, advanced production techniques and the administration of the media centre. 3 credits. *Prerequisite: 432-204.*

432-306A, B **EDUCATIONAL TELEVISION.** This course will survey the development of ETV with particular reference to current topics including children's TV programs, cable and closed circuit ETV. Short TV productions will take place in class to encourage a critical analysis of the potential of portable TV equipment for local teacher and student production. 3 credits.
Prof. R. Pollard

432-307C **CATALOGUING AND CLASSIFICATION OF LIBRARY MATERIALS.** An introduction to the use of subject headings, the Dewey Decimal Classification and other classification systems for print and non-print materials. (Not offered 1973). 3 credits.

432-308C **LIBRARY REFERENCE MATERIALS AND TECHNIQUES.** An introduction to basic library reference tools and their use; means of developing effective student utilization of library resources. (Not offered 1973). 3 credits.

432-309C **THE LIBRARY-RESOURCE CENTRE.** The developing of a library-resource centre including such topics as administration, acquisitions, processing, circulation routines, budgeting, and methods of integrating the library-resource centre into the school curriculum. 3 credits.

†432-404A, B **CONTEMPORARY DEVELOPMENTS IN EDUCATIONAL MEDIA.** An examination of current trends in educational media including a critical analysis of educational television, computer assisted instruction, systems analysis, programmed instruction, independent learning carrels, gaming and stimulation etc. Limited enrollment. 3 credits. *Prerequisites: 432-204 or permission of instructor.*

432-405A, B **INDEPENDENT PROJECT.** An extensive media production undertaken by the student after consultation with and the approval of the director of the library-media programme. 6 credits. *Prerequisites: 432-204 and 432-304.*

433-312C **METHODS AND MATERIALS FOR THE KINDERGARTEN.** Analysis of the kindergarten environment with emphasis on equipment, materials, and suggestions for their use. 3 credits.

433-322A **CREATIVE PROGRAM SKILLS.** An exploration of procedures to encourage imagination, invention and expression through movement, language, literature, art, science, music, drama. 3 credits. *Prerequisite: Background in Art, Music or Movement recommended.*

433-411A **PRE-SCHOOL CURRICULUM.** A practicum related to field experience, designed to assist the student in planning and maintaining a learning

environment for the pre-school child; emphasis on innovation in pre-school education, cooperation between home and school, selection and use of media and materials, and the individual needs of the child. 3 credits.

433-421A **ELEMENTARY CURRICULUM – EARLY CHILDHOOD.** A practicum related to field experience, designed to assist the student in planning an integrated program; stress on activity centred instruction, provision for individual differences, use of media and materials, relationships between home and school, evaluation and professional development. 3 credits.
Prof. Davis

433-431A **ELEMENTARY CURRICULUM – LATER CHILDHOOD.** A practicum related to field experience that will focus on the tactics involved in implementing continuous progress, individualizing instruction, developing heuristic projects for an integrated curriculum; use of media and materials, diagnostic-prescriptive teaching and evaluation. 3 credits.

433-512A or B **KINDERGARTEN PROCEDURES – EARLY CHILDHOOD.** Analysis of the kindergarten environment with emphasis on equipment, materials, and suggestions for their use. 2 hours, 1 term. **Prof. Davis**

*434-204A **HEALTH EDUCATION.** This course is designed to help the prospective physical education teacher understand his/her role in the total school health program in the elementary and high school. A study of current issues pertaining to health and health education is made, including the problems facing the individual in today's complex and changing society. 3 credits.
Prof. Nichol

*434-205A **BIOLOGICAL FOUNDATIONS FOR PHYSICAL EDUCATION.** An introductory course in human anatomy and physiology with some basic principles of chemistry and physics essential for the comprehension of physiological and kinesiological mechanisms. 3 credits. **Prof. Greenisen**

*434-206B **KINESIOLOGY.** A study of the basic principles of human movement with emphasis on their practical application to physical skills. The course is concerned with the functional anatomy and neuromuscular basis of human movement. 3 credits. *Prerequisite: 434-205A.* **Prof. Greenisen**

434-207A **TESTS AND MEASUREMENT IN PHYSICAL EDUCATION.** The function of this course is to acquaint students with the selection, construction and use of tests designed to measure sports skills, motor abilities, physical fitness and related knowledge. It includes an introduction to elementary statistics as related to their use in the physical education teaching situation. 3 credits.
Prof. D. Marisi

*434-224A **MOVEMENT EDUCATION – ELEMENTARY SCHOOL.** Personal and creative activity in manipulative, non-manipulative and expressive motor activity; the study of basic movement education concepts, principle of movement and the role of movement education in the life of the developing child. 3 credits.

*434-291A **COMMUNITY RECREATION.** The main focus of the course centres on the relationship of the school to youth recreation agencies. Guidelines for planning effective recreation programs, techniques for the coordination of youth recreation services and basic recreation leadership principles are studied. 3 credits.

*434-391B **ERGO-PHYSIOLOGY.** Emphasis is on human organic adaptability; acute and chronic adaptive mechanisms to exercise and other environmental stresses are analysed. A laboratory program included to evaluate (measure and predict) adaptive capacity and assess factors affecting it. 3 credits. *Prerequisite: Physiology 201A.*

*434-493A, B **ADMINISTRATION OF PHYSICAL EDUCATION.** Organization and administration of programs in Physical Education; emphasis on common problems encountered by physical educators in the instructional, intramural and interscholastic areas. 3 credits.

434-494B **PRINCIPLES & CURRICULUM DEVELOPMENT IN P.E.** Directed towards

an understanding of the important principles which should be the foundation of a modern program in Physical Education; student's role in the development, implementation and evaluation of the Physical Education curriculum. 3 credits. Prof. Riley

*434-495B **SCIENTIFIC PRINCIPLES OF ATHLETIC TRAINING.** Application of physiological and kinesiological principles in the selection, administration and evaluation of athletic conditioning program; specific topics studied will include circulo-respiratory training, intermittent training, isometric training, weight training, calisthenic principles and circuit training methods. 3 credits. *Prerequisite: Physiology 201A and Ergo-Physiology 391B.*

434-496B **PHYSICAL EDUCATION FOR EXCEPTIONAL CHILDREN.** Identification, evaluation, and remediation techniques basic to the development of effective physical education programs for educable mentally retarded children and children with specific learning disabilities; Progressive motor learning experiences related to body image, spatial relations, eye-hand coordination, and balance will be developed, applied and evaluated. 3 credits. *Prerequisites: 434-242B or consent of instructor.*

434-497B **HISTORICAL AND COMPARATIVE ASPECTS OF PHYSICAL EDUCATION AND SPORT.** An historical study of the origins and development of physical education and sport, and a comparative study of physical education and sport practices of many nations. 3 credits. Prof. Riley

434-521A and B **MOVEMENT EDUCATION – CURRICULUM AND INSTRUCTION – EARLY CHILDHOOD.** (3 hours). Prof. J. Wall

434-531A and B **PHYSICAL EDUCATION – CURRICULUM AND INSTRUCTION – LATER CHILDHOOD.** 3 credits. Physical Education Staff

PE SKILLS AND TECHNIQUES

Personal skill development, teaching sequences and strategies specific to three areas selected from the list of available activity courses (see below).

434-242 **ELEMENTARY PHYSICAL EDUCATION METHODS.** An introduction to methodology and field experience in elementary school physical education; educational gymnastics directed towards the teaching and learning in manipulative, non-manipulative and expressive uses of movement. 3 credits.

434-241 **PE SKILLS AND TECHNIQUES I.** (3 credits).

434-301 **PE SKILLS AND TECHNIQUES II.** (3 credits).

434-302 **PE SKILLS AND TECHNIQUES III.** (3 credits).

434-401 **PE SKILLS AND TECHNIQUES IV.** (3 credits).

434-402 **PE SKILLS AND TECHNIQUES V.** (3 credits).

434-405 **PE SKILLS AND TECHNIQUES VI.** (3 credits).

Required Activity Courses (9 Credits)

Men	Women
Educational Gymnastics	Educational Gymnastics
Elementary P.E. I	Elementary P.E. I
Folk Dance	Folk Dance
Intro. Aquatics	Intro. Aquatics
Intro. Basketball	Intro. Basketball or Volleyball
Intro. Gymnastics	Intro. Creative Dance
Intro. or Advanced Track & Field	Intro. Gymnastics
Intro. Volleyball	Intro. or Advanced Track & Field
Outdoor Education	Outdoor Education

Optional Activity Courses (Minimum of 9 Credits)

Men	Women
Advanced Aquatics	Advanced Aquatics
Advanced Basketball	Advanced Basketball
Advanced Football	Advanced Creative Dance
Advanced Gymnastics	Advanced Educational Gymnastics

Advanced Ice Hockey
Advanced Martial Arts
Advanced Wrestling
Advanced Volleyball
Archery/Golf
Badminton/Handball/Squash
Elementary School P.E. II
Field Games
Introductory Ice Hockey
Introductory Martial Arts
Introductory Wrestling
Lacrosse
Skiing
Soccer
Team Handball
Tennis/Curling

Advanced Field Hockey
Advanced Gymnastics
Advanced Martial Arts
Archery/Golf
Badminton/Squash/Handball
Elementary School P.E. II
Field Games I
Field Games II
Ice Activities
Intro. Creative Dance
Intro. Field Hockey
Intro. Martial Arts
Intro. Volleyball or Basketball
Rhythmic Gymnastics
Skiing
Tennis/Curling

DIRECTED OBSERVATION

Supervised field courses which provide an opportunity for the student to observe pupils in the school environment, the role and responsibilities of the teacher, the processes of teaching and learning, etc. Includes introductory conferences, seminars and some teaching experience. *Co-requisite: 448-305 An Integrated Study of Teaching and Learning.*

435-145 **DIRECTED OBSERVATION – PRE-SCHOOL.** 3 credits.

435-245 **DIRECTED OBSERVATION – ELEMENTARY SCHOOL.** 3 credits.

435-375 **DIRECTED OBSERVATION – SECONDARY SCHOOL.** 3 credits.

435-495 **DIRECTED OBSERVATION – ELEMENTARY AND SECONDARY SCHOOLS.** 3 credits.

STUDENT TEACHING

Supervised field courses arranged by the Student Teaching Office with the cooperation of regional schools. Under the guidance of an assisting teacher students work in a classroom, over an extended period of time, teaching at the level and in the subject areas appropriate to their individual programs. In conjunction with this practical experience the faculty provides conferences and seminars in related methodologies as well as individual counselling and post-practicum evaluation.

435-376 **FIELD EXPERIENCE – SECONDARY SCHOOL.** (One subject). 9 credits.

435-377 **FIELD EXPERIENCE – SECONDARY SCHOOL.** (Two subjects). 9 credits.

435-496 **FIELD EXPERIENCE – ELEMENTARY AND SECONDARY.** (One subject). 9 credits.

435-411 **FIELD EXPERIENCE – NURSERY SCHOOL AND KINDERGARTEN.** 6 credits. *Co-requisite: 433-411.*

435-421 **FIELD EXPERIENCE – EARLY CHILDHOOD LEVEL.** 6 credits. *Co-requisite: 433-421.*

435-431 **FIELD EXPERIENCE – LATER CHILDHOOD LEVEL.** 6 credits. *Co-requisite: 433-431.*

435-544 **CLASSROOM INTERNSHIP IN ELEMENTARY SCHOOLS.** Semester I: 2 days a week. Semester II: 3 days a week.

435-574 **CLASSROOM STUDENT TEACHING – HIGH SCHOOL.** Semester I: 2 days orientation, 3 weeks in classroom. Semester II: 2 days orientation, 5 weeks in classroom.

436-562D **TEACHING METHODS IN BUSINESS EDUCATION.** A course in general teaching principles which will include the teaching and learning process, lesson planning, unit planning, and techniques of instruction specific to:
a) Accounting and Business Machines.
b) Typewriting and Shorthand. 3 hours, 2 terms. **Prof. Waddell**

436-564D **ORGANIZATION AND ADMINISTRATION OF BUSINESS EDUCATION.** A course designed to investigate the place of Business Education in the secondary school curriculum and to indicate to the beginning teacher the

need for good planning and administration in the classroom routine and to develop an ability to evaluate various aids to the learning process. 3 hours, 2 terms. Prof. Waddell

436-572D **METHODS IN TEACHING TECHNICAL AND VOCATIONAL SUBJECTS.** Methods and techniques of instruction in industrial and commercial education subjects. Classroom management and administration. Lesson planning and use of instructional materials. Individual assignments, demonstrations and reports. Special problems of the teacher. Testing and evaluation. 3 hours, 2 terms.

436-574D **ORGANIZATION AND ADMINISTRATION IN TECHNICAL-VOCATIONAL EDUCATION.** This course deals with the principles of effective management, safe planning, architectural considerations, material and tool control, purchasing and maintenance of equipment, student personnel, and teacher responsibilities. The student will plan an instructional area in order to develop an understanding of the principles for producing the necessary two and three dimensional visual materials required for more effective lesson presentation and curriculum development. 3 hours, 2 terms.

436-575A, B **CURRICULUM DEVELOPMENT IN TECHNICAL-VOCATIONAL EDUCATION.** Curriculum organization of technical-vocational education in harmony with the needs of contemporary society; readings, discussions, terminology, aims and objectives, analysis, instructional units, principles of course organization and planning of curricula for specific situations. 3 hours, 1 term.

436-576A, B **EDUCATION EVALUATION IN TECHNICAL-VOCATIONAL EDUCATION.** Emphasis on student growth and progress in public education; appraisal of specialized techniques of evaluation, teacher made tests, and data analysis as specifically related to Technical-Vocational Education. 3 hours, 1 term.

446-504D **ORIENTATION TO TEACHING.** 1 hour, 2 terms. Staff

448-200D **ORIENTATION TO TEACHING.** T-1 (North).

448-204A **INTRODUCTION TO EDUCATION.** An overview of present day educational practices and policies with particular reference to the schools of Quebec; designed to provide the student with a personal frame of reference within which subsequent academic and professional studies preparatory to a teaching career may be effectively evaluated and pursued. 3 credits.

448-205D **LANGUAGE AND COMMUNICATION.** T-1 (North).

448-305A or B **AN INTEGRATED STUDY OF TEACHING AND LEARNING.** An interdisciplinary course which introduces students to the theories and practices of teaching and learning, touching upon philosophy, psychology, sociology, history, research in education, the adoption of educational innovation and the discipline which form part of the school curriculum. 6 credits.

204-456D **APPLICATION OF PSYCHOLOGICAL PRINCIPLES TO EDUCATIONAL PROBLEMS.** The course will focus on the major problems in education and instruction and review psychological research findings which bear on these issues. Students will investigate literature and design and conduct an experiment related to one of the following areas: (1) Individual Student Differences; (2) Social Aspects of Education; (3) Programmed Learning; (4) Design and Evaluation of Learning Environments and (5) Classroom Management (e.g. applications of behaviour modification). 3 credits. *Prerequisites: This course has a restricted enrolment and permission of the instructor is required. Students should have had Psychology 204A and 205B; NOTE: This course is not intended as a professional teacher preparation course.* Prof. Charles Pascal (Centre for Learning and Development, Department of Psychology)

The following courses are offered to Faculty of Education students ONLY by the Department

of Biology. Details may be obtained from the Faculty of Education office or from the Core Curriculum Director, Room W4/8, Stewart Biology Building.

177-208A **BIOLOGY OF ORGANISMS I.** (3 credits).

177-209B **BIOLOGY OF ORGANISMS II.** (3 credits).

177-210A **LABORATORY IN BIOLOGY OF ORGANISMS I.** (2 credits).

177-211B **LABORATORY IN BIOLOGY OF ORGANISMS II.** (2 credits).

177-203A **CELL AND MOLECULAR BIOLOGY I.** (3 credits).

177-204B **CELL AND MOLECULAR BIOLOGY II.** (3 credits).

The following course is offered to Faculty of Education students ONLY by the Department of Geography.

183-E14A **INTRODUCTION TO GEOGRAPHY II.** *Prerequisite: 183-E13A.*

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McGill University

FACULTY OF ENGINEERING

Including the School of Architecture
and the School of Computer Science

1973-1974

Macdonald Engineering Building
805 Sherbrooke St. West*
Montreal 112, Que., Canada
Telephone (514) 392-5880

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

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CALENDAR FOR SESSION 1973-1974

1973

September 4, Tuesday & September 5, Friday	Pre-registration student counselling.
September 6, Thursday & September 7, Friday	Registration in University Level Engineering, Architecture and B.Sc.(Arch.) (10:00 a.m. to 4:00 p.m.)
September 10, Monday	Lectures begin in University Level programs in Engineering, Architecture, and B.Sc.(Arch.)
September 18, Tuesday	Registration in E2 Engineering. (9:00 a.m. to 5:00 p.m.)
September 20, Thursday	Lectures begin in all College Equivalent programs and in University Level programs in Arts, Science, Education and Management.
September 28, Friday	Last day for first term course changes in University Level programs.
October 1, Monday	Late registration in all faculties.
October 8, Monday	Thanksgiving. Lectures cancelled.
November 6, Tuesday	Fall Convocation.
November 16, Friday	Last day for withdrawal from A courses of the Faculty of Engineering.
December 7, Friday	Last day of first term lectures in University Level programs in Engineering, Architecture and B.Sc.(Arch.).
December 12, Wednesday to December 21, Friday	Examinations in first term courses University level programs in Engineering, Architecture and B.Sc.(Arch.)
December 19, Wednesday	Last day of first term lectures in College Equivalent program.

1974

January 3, Thursday to January 18, Friday	Examinations in first term courses in all College Equivalent programs, and University Level programs in Arts, Science, Education and Management.
January 17, Thursday	Second term registration for new students in Arts, Science, Education, Engineering and Management.
January 21, Monday	Second term begins in all College Equivalent programs and in University Level programs in Arts, Science, Education, Engineering, Architecture, B.Sc.(Arch.), and Management.
February 8, Friday	Last day for second term course changes in University Level programs.
March 1, Friday	Mid-term weekend holiday (Montreal Campus). Lectures cancelled.
March 20, Wednesday	Last day for submitting Doctoral theses for Spring Convocation.
March 27, Wednesday	Last day for submitting Master's theses for Spring Convocation.
March 29, Friday	Last day for withdrawal from B courses of the Faculty of Engineering.
April 12, Friday to April 15, Monday (incl.)	Easter. Administrative Offices will be closed from 5:00 p.m. Thursday, Apr. 11, until 9:00 a.m. Tuesday, Apr. 16. No lectures.
April 19, Friday	Last day of lectures.
April 22, Monday	Examinations begin in all College Equivalent programs and in University Level programs in Arts, Science, Education, Engineering, Architecture, B.Sc.(Arch.) and Management.
May 3, Friday	Last day for submitting reports on Doctoral and Master's theses for Spring Convocation.
May 9, Thursday	Examinations end.
May 14, Tuesday	Last day for Doctoral oral examinations.
May 20, Monday	Victoria Day. Administrative Offices will be closed.
June 5, Wednesday to June 8, Saturday	Convocations.

1 ADMINISTRATIVE OFFICERS AND FACULTY COMMITTEES

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A.(U.B.C.), Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

Stanley B. Frost, B.D., M.Th.(Lon.), Dr. Phil.(Marburg), D.D.(Vic.,Tor.), D.Litt.(Mem.)
Vice-Principal (Administration and Professional Faculties)

Eigil Pedersen, B.A.(SGW), Ed.D.(Harv.), M.A. — Vice-Principal (Academic)

Allan C. McColl, D.F.C., B.Com., C.A. — Director of Finance

John H. Holton, B.Com.(Tor.) — Secretary of the Board of Governors

Colin M. McDougall, D.S.O., B.A. — Registrar

George L. d'Ombrain, B.Sc.(Eng.), Ph.D.(Lon.), D.I.C., A.C.G.I., Eng., F.I.E.E., S.M.I.E.E.E.
Dean

Thomas H. Barton, B.Eng., Ph.D., D. Eng.(Sheff.), F.I.E.E., S.M.I.E.E.E.
Associate Dean, Academic

William Bruce, M.A.Sc.(Tor.), Eng., M.E.I.C., M.A.S.M.E. — Associate Dean, Student Affairs

Tomas J.F. Pavlasek, M.Eng., Ph.D., Eng., M.E.I.C., S.M.I.E.E.E.
Associate Dean, Planning and Development

Norbert Schoenauer, M.Arch., M.I.T.I.C., M.T.T.I.C., C.U.Q.
Director, School of Architecture

George Marsaglia, B.Sc.(Colorado), Ph.D.(Ohio) — Director, School of Computer Science

Gerald A. Ratcliff, B.A., M.A. (Cantab), Ph.D.(Cornell) F.C.I.C., M.C.S.Ch.E., F.I.Ch.E.
Chairman, Department of Chemical Engineering

Richard G. Redwood, B.Sc.(Bristol), M.A.Sc.(Tor.), Ph.D.(Bristol), Eng., M.I.C.E., F.I.Struct.E., M.C.S.C.E.
Chairman, Department of Civil Engineering and Applied Mechanics

Gerald W. Farnell, B.A.Sc.(Tor.), S.M.(M.I.T.), Ph.D., Eng., F.I.E.E.E.
Chairman, Department of Electrical Engineering

Jules W. Stachiewicz, B.Eng., M.Eng., Eng., M.A.S.M.E. M.C.S.M.E.
Chairman, Department of Mechanical Engineering

William M. Williams, B.Sc., M.Sc.(Bristol), Ph.D.(Tor.), Eng., M.C.I.M., M.I.M.
Chairman, Department of Mining and Metallurgical Engineering

P.V. Covo, B.Eng., Eng. — Secretary of Faculty

Ms. Ida Godefroy — Administrative Assistant to the Faculty

1.2 STANDING COMMITTEES OF THE FACULTY

ACADEMIC COMMITTEE

Associate Dean Barton *(Chairman)*, Professors Davenport, Ferguson, Grace, Merrett, Paidoussis, Turkstra, Zuk.

Student Members: Three undergraduates.

ADMISSIONS TO UNDERGRADUATE PROGRAMS

Professors Woolsey *(Chairman)*, Bruce, Drummond.

ADVANCED STUDIES

Professors Kamal *(Chairman)*, Farley, Harris, Guthrie, Paige, Silvester, Zwarts.

Student Members: Two graduates.

AGRICULTURAL ENGINEERING

Professors Ogilvie *(Chairman)*, Schuepp and Broughton of the Faculty of Agriculture and Professors Forde, Japp and Weber of the Faculty of Engineering.

DEVELOPMENT

Associate Dean Pavlasek *(Chairman)*, Dean d'Ombrain, Professors Barton, Farnell, Schoenauer, Marsaglia, Ratcliff, Redwood, Stachiewicz, Williams.
Student Members: Two undergraduates.

LIBRARY

Professors Newman *(Chairman)*, Farkas, Howarth, Merrett, Savage, Thompson, Mrs. M. Neumann.
Student Members: Two undergraduates and one graduate.

NOMINATING

Dean d'Ombrain *(Chairman)*, Professors Davenport, Dealy, Drummond, Harris, Howarth, Marsaglia, Newman.

SCHOLARSHIPS, BURSARIES AND LOANS

Professors Adler *(Chairman)*, Bruce, Redwood.

STANDINGS

Associate Dean Bruce *(Chairman)*, Dean d'Ombrain, Professors Farnell, Ratcliff, Redwood, Stachiewicz, Williams. Ms. I. Godefroy *(ex officio)*.

2 THE FACULTY

2.1 HISTORICAL NOTE

The Faculty of Engineering celebrated its centenary during the 1971-72 session. It began operations as the Department of Practical and Applied Science in the Faculty of Arts offering degree programs in Civil Engineering and Surveying, Mining Engineering and Assaying, and Practical Chemistry and Assaying. Diploma courses had been offered from 1859 and by 1871, the staff and enrolments had increased sufficiently to justify the creation of the Department. Continued growth led to the formation of the Faculty of Applied Science in 1878 and by 1910 there were ten degree programs offered, including Architecture and Railroad Engineering. Subsequent changes in the overall pattern of the University led to the creation in 1931 of the Faculty of Engineering with a departmental structure very similar in name to that which exists at the present time.

2.2 THE FACULTY TODAY

The current structure of the Faculty includes five engineering departments and two schools:

The Departments

Chemical Engineering
Civil Engineering and Applied Mechanics
Electrical Engineering
Mechanical Engineering
Mining and Metallurgical Engineering and Applied Geophysics

The Schools

Architecture
Computer Science

Undergraduate programs leading to professional bachelor degrees are offered in all segments except the recently created School of Computer Science. These programs are designed to qualify the graduates for immediate employment in a wide range of industries and for membership in the appropriate professional bodies. Additionally, a non-professional degree is offered in the School of Architecture for those who plan to work in related fields not requiring professional qualification. The curricula are also structured to provide suitable preparation for those who plan to continue their education in post-graduate studies either at McGill or elsewhere.

The academic programs, which are described in detail in Section 5, are divided into a core and an elective section. The core programs emphasize those unchanging basic principles which permit our graduates to keep abreast of progress in technology throughout their careers. Exposure to current technology is provided by the wide variety of technical elective courses which allow our students to pursue in depth a particular field of interest. Free electives provide the opportunity for study in non-technical fields. We recognize the managerial functions of a large proportion of engineers and maintain a close liaison with the Faculty of Management. A variety of sub-programs in management have been established and are described in Section 5.

Post-graduate programs leading to master's and doctoral degrees are offered in all sectors of the Faculty. Numerous areas of specialization are available in each of the departments and schools. All post-graduate programs are described in the *Announcement of the Faculty of Graduate Studies and Research.*

The recently created School of Computer Science concerns itself with a broad range of activities associated with the design, operation and application of computer facilities. A variety of courses appropriate to these areas is available to our undergraduates. Specialized degree programs are offered only at the post-graduate level following undergraduate studies in engineering, mathematics or certain branches of science.

2.3 SPECIAL FACILITIES AND RELATED PROGRAMS

2.3.1 McGILL COMPUTING CENTRE

The Computing Centre, located in Burnside Hall, is organized to provide digital computer service for research and instructional purposes within the University. The equipment installed comprises an IBM System 360 Model 75 and an IBM System 370 Model 155 computer. The 360/75 provides batch processing from both local and remote locations, including a card reader and line printer in the McConnell Engineering Building. The 370/155 is operated as a remote access system, providing interactive computing from typewriter terminals installed at many locations on campus.

All engineering undergraduate students receive an introductory course in computing in the early stages of their studies and subsequently use the computer for the solution of engineering problems in other courses. Post-graduate students and staff use the facility extensively for research purposes.

2.3.2 BRACE RESEARCH INSTITUTE

The Brace Research Institute was founded in 1959 to develop equipment and techniques for making arid lands available and economically useful for agricultural purposes. The Institute has concentrated on the problems affecting individuals or small communities in rural areas and is one of the few organizations with this basic objective.

In general, equipment developed by this Institute utilizes as many local resources as possible, whether human, energy or material, so that the technology can be easily adapted to the local environment. As a result the Institute has concentrated on utilizing solar and wind energy as well as simple desalination systems, specifically concentrating on the problems that face isolated rural populations in developing arid areas.

The adaptation of simple greenhouses combined with solar desalination systems for the production of food and water in arid areas is being developed. Also simple windmills for the production of electricity and the pumping of water have been developed. Basically the approach adopted is that of "intermediate technology".

The Institute has its headquarters in the Agricultural Engineering Building on the Macdonald College campus at Ste-Anne de Bellevue about 20 miles to the west of the main campus.

2.3.3 INSTITUTE FOR MINERAL INDUSTRY RESEARCH

This facility has been established at Mont St-Hilaire by the Department of Mining Engineering and Applied Geophysics to conduct research and development relating to problems confronting the mineral industry of Canada. The program covers a wide range of activities and much of the work of the Institute is of an interdisciplinary nature.

2.3.4 AGRICULTURAL ENGINEERING

The Faculty of Engineering cooperates with the Faculty of Agriculture in providing courses of instruction for a curriculum in Agricultural Engineering *to meet requirements for a degree awarded in the Faculty of Agriculture.* The penultimate year of the program is given by the Faculty of Engineering on the Montreal campus. Details of the curriculum are given in the *Announcement of the Faculty of Agriculture.*

2.3.5 BIOMEDICAL ENGINEERING UNIT

The Biomedical Engineering Unit was formed in 1966 jointly by the Faculties of Engineering and Medicine to increase cooperative research work in this new but important area. It provides post-graduate programs at the M.Eng. and Ph.D. levels for engineering graduates from any specialty who are appropriately motivated.

The research interests of the Unit can be classified into two main categories: (i) experimental and theoretical studies of a basic scientific nature, and (ii) application and development of technology for health care delivery. The basic research work encompasses neuromuscular control system studies, in particular locomotion and posture, vestibular and visual control; optimization studies of eye movements and of the cardiovascular system; sensory and neural communication theory; modelling of the auditory system; and amino acid transport across cell membrane. Research is done within the Unit and in the Otolaryngological Research Laboratories, Royal Victoria Hospital, Department of Biophysics, Montreal Children's Hospital, or in any other laboratories primarily concerned with the particular projects.

In the area of research and development for health and medical services, the activities are: computer applications and instrumentation for audiology, cardiology, electronystagmography, visual testing and the processing of biological signals; analysis of the system aspects of hospitals, health care centres and their sub-units; investigation and design of information systems for pathology, clinical laboratories and other hospital functions.

2.4 LIBRARY FACILITIES

The University has numerous libraries serving a wide variety of needs. Those specifically serving Engineering and Architecture are the Engineering Library, the Physical Sciences Library and the Blackader Library of Architecture. The general needs of undergraduates are served by the Redpath Library which in addition to a collection of 100,000 volumes has extensive audio-visual facilities permitting self-study of modularized courses.

The Engineering Library is located on the Main Floor of the Macdonald Engineering Building in Room 283. It contains nearly 30,000 volumes. The contents cover Civil, Electrical and Mechanical Engineering with additional information on the following subjects: aeronautics, computer science, management, mathematics and soil mechanics.

Material on Chemical, Metallurgical and Mining Engineering is available at the Physical Sciences Library which also houses literature on chemistry, geography, geology, mathematics and physics and is located in the Physical Sciences Centre.

The Blackader Library of Architecture, on the third floor of the Redpath Library, houses approximately 30,000 volumes. The subjects of this collection cover landscape architecture, town planning and urban design, history of architecture, architectural planning, building construction, housing, fine arts and applied arts. The library subscribes to 210 periodicals in various languages. The Blackader Library has its own Rare Book Department with valuable first editions in the fields of architecture and the fine arts. On the fourth floor of the building is a unique collection of original drawings and photographs of old Canadian architecture. The Blackader Library serves undergraduate as well as graduate students.

More details on library services are given in the Engineering Library Handbook available at the Engineering Library circulation desk and the Redpath Library Handbook available at the reference desk on the main floor of the Redpath Library.

3 GENERAL INFORMATION

3.1 ADMISSION REQUIREMENTS

Admission to the Faculty's undergraduate programs occurs twice per year, at the start of the Fall semester and the start of the Spring semester. It is based on one of the following qualifications:

Satisfactory completion of the College Equivalent program in Engineering or Physical Sciences at McGill (see Section 3.8 for details) or equivalent preparation at another college or university in the Province of Quebec.

OR

The diploma of Collegial Studies (DCS or DEC) in the Physical Sciences program at a CEGEP in the Province of Quebec. A candidate will have a greater choice of electives in his engineering program if he can take the collegial elective Calculus III. An equivalent mathematics course is provided for those who were unable to do this.

OR

Academic qualifications achieved elsewhere and equivalent to the above.

Candidates applying to enter Architecture must also have taken the Princeton Architectural School Aptitude Test. Application forms for the test can be obtained from the School of Architecture office after September 1. The tentative final dates for registration for this test are mid-November and mid-January. Enrolment in the School is limited and admission is based on academic standing and aptitude.

3.2 APPLICATION

Application should be made to the Director, Admissions Office, McGill University, P.O. Box 6070, Montreal 101, Que.

Applications for admission to the Fall semester should be received before March 1. Applications after this date will be considered only from Canadian residents and then only if places are available.

Applications for admission to the Spring semester must be received before December 1.

3.3 REGISTRATION

Registration will take place in the Sir Arthur Currie Gymnasium on the following days:

College equivalent program, second year;

Tuesday, September 18, 1973,
9 a.m. to 5 p.m.

University level programs;

Thursday, September 6 and Friday, September 7, 1973,
10 a.m. to 4 p.m.

Late registration, for which an additional fee of $25 is required, will take place on *Monday, October 1, 1973.* Applications for remission of the late registration fee will be considered only in cases of illness or other family emergency.

3.3.1 COURSE CHANGES

A student may change a course for which he has registered provided this is done before the end of the third week of the semester.

3.3.2 COURSE WITHDRAWAL

A student may withdraw from a course without academic penalty provided he accomplishes this before the end of the tenth week of the semester. Beyond this time his name will appear on the examination lists and, in the event of his not taking the examination, he will be allocated a KF grade (see Section 4.3.1).

3.4 COUNSELLING

New students are required to seek academic counselling about their programs prior to the registration date from the Department in which they plan to study. Additional information may be obtained by calling:

General	392-5860, -5878 or -5880
Architecture	392-5409

Chemical Engineering	392-5432
Civil Engineering	392-5963
Computer Science	392-8274
Electrical Engineering	392-5416
Mechanical Engineering	392-5473
Metallurgical Engineering	392-5706
Mining Engineering	392-5430
Non-Quebec Admissions	392-5867
Student Aid	392-5258

3.5 FEES

The annual fee for a full-time student of Engineering is $740 and for a student of Architecture is $746. The annual fee can be paid in two equal instalments at the start of each semester.

Fees for all programs are listed in the *General Announcement* and a brief summary statement is available on request from the Admissions Office. Some programs in the Faculty of Engineering require attendance at special summer schools. The specific arrangements concerning fees for these courses have not been established in relation to the new course promotion system and students are urged to contact the Dean's Office well in advance of the summer during which they plan to attend.

3.6 STUDENT ACTIVITIES

The campus offers a wide variety of extracurricular activities for students. All are urged to participate in those of their choice and within the limits of their interests and abilities. Many of these are organized within the Faculty under the auspices of the Engineering Undergraduate Society and/or the Architectural Undergraduate Society. Both of these organizations publish handbooks describing their operations and the activities of various clubs and societies within the Faculty. All undergraduate students automatically become members of the EUS or the AUS, as appropriate.

3.7 ACADEMIC CREDIT TRANSFER AGREEMENT

Regular full-time undergraduate students and regular graduate students registered at McGill may, with the written permission of the Dean of their Faculty, register for up to 40% of a full load in each academic year at one or more of the following Montreal universities: Sir George Williams University, Université de Montreal, and Université du Québec à Montreal. These courses, weighted, graded, and successfully completed according to the standards of the university giving the courses, will be fully recognized by McGill for the purpose of the degree for which the student is registered. Students wishing to take advantage of this agreement should consult their Dean for details, and are informed that this agreement is subject to the following conditions:

(i) that courses in the core program must be taken at McGill;

(ii) that the other universities concerned may, at their discretion, refuse the registration of a student for any of their courses or programs;

(iii) that the obligation of the student to follow the curriculum laid down by McGill is not affected;

(iv) that the student is responsible for ensuring that his timetable at McGill permits him to take courses at any of the other universities concerned;

(v) that the universities concerned are not responsible for special arrangements in cases of examination timetable conflict.

Any student taking advantage of these provisions will not pay extra fees to the university, other than McGill, from which he takes a course. The Director of Finance will, upon receiving the Dean's authorization, provide a student with a letter accepting McGill's obligation to make a fee transfer to the university where the course is being taken.

3.8 COLLEGE EQUIVALENT PROGRAM

As an interim measure pending the establishment of a network of English language colleges the University has offered a college equivalent program of two years duration. This will be terminated in 1974 and for 1973-74, only its second year will be offered. The information given below contains those details of the first year program necessary for students entering this second year.

3.8.1 CURRICULUM

For the first two years after junior matriculation (or for one year after senior matriculation) students in Engineering and Architecture are enrolled in a College Equivalent program. The curriculum of this program consists of the core of required courses listed below to which must be added a suitable selection of elective courses to provide a total of five courses in each of the four terms. The basic outline of the program in Engineering is as follows:

YEAR E-1

Term I	Term II
English 120-E10D	English 120-E10D
Mathematics 189-E80A	Mathematics 189-E81B
---	Chemistry 180-E10B
---	Physics (Mechanics) 198-E31B
--	---

YEAR E-2

Term I	Term II
Mathematics 189-E82A	Mathematics 189-E83B
Chemistry 180-E20A	Waves and Modern Physics 198-E33B
Physics (Electricity and Magnetism) 198-E32A	---
---	---
---	---

The nine blank spaces must be filled with courses totalling a minimum of 27 credits to satisfy the following requirements:

1. The French requirement described in section 3.8.5 (up to two courses),
2. One course in biology,
3. Two courses in arts (humanities, social sciences, etc.).
4. Four to six freely elected courses depending upon the French requirement.

ENGINEERING

This program which requires a total of 67 credits is essentially similar to the Physical Sciences program except that the courses in mathematics and physics are somewhat heavier, each carrying four credits. Two elective courses, Engineering Graphics and Materials Science, are described below. Students are also advised to study carefully the offerings of other faculties, notably Arts, Science, Management, Music, etc. before deciding on the choice of elective courses.

A student in the Engineering program can, by careful selection of elective courses, satisfy the requirements of almost all other programs.

Students completing the Physical Science program may enter the University program in Engineering. They should contact the Faculty of Engineering during the spring term to discuss their preparation in mathematics and physics.

3.8.2 GRADING AND PROMOTIONS

Requirements are stated in terms of credits. A six-credit course typically has three lectures per week plus ancillary laboratory or conference periods (if applicable) and lasts for the full academic year; a three-credit course has a similar number of instructional periods per week but lasts for one term only.

The course numbers of courses offered in the first term are given the suffix "A", those given in the second term the suffix "B", and courses running through both terms the suffix "D".

(i) Courses are graded A (80-100%), B (65-79%), C (55-64%), D(45-54%) and F (failure-below 45%). Grades A,B and C will be classed as satisfactory, grade D is passing but such a grade in a course will not permit entry into a subsequent course for which it is a prerequisite.

(ii) Successful completion of a college equivalent program will be achieved by passing in courses totalling 67 credits including a minimum C grade in all required courses.

(iii) The normal course load per year is 30 credits.

(iv) No student will be permitted to repeat a course in which he has already received a satisfactory grade.

(v) At the end of the second year a student with satisfactory grades in courses totalling fewer than 30 credits will be required to withdraw. No supplemental examinations will be allowed.

(vi) A student with satisfactory grades in courses totalling 30 or more credits at the end of second year will be allowed to repeat one or both terms of second year, if by so doing it is possible for him to complete a college equivalent program. Such a student will not be required to pass more courses than are needed to complete his program, so that he may be a limited student. He will be considered to be in the E2 year.

(vii) In determining the grade assigned for courses, instructors are encouraged to attach considerable weight to regular evaluations during the progress of the course, such as class tests, laboratory results, term papers, etc.

(viii) Many of the offerings at the collegial level are given for one term only. An isolated three credit course presents no problem but related pairs of such courses given in one year, in which the first is prerequisite to the second, give rise to difficulties because of the McGill calendar, in which second-term lectures commence immediately on the completion of first-term examinations. Such paired courses are designated by the department (or departments) involved. Students taking only the first course of a pair will be graded normally, but for students registered in both, the examination at the end of the first term will be treated as a class test and a single final grade for both courses will be established at the end of the year.

(ix) Students in E1 may be permitted by the Associate Dean, Student Affairs, to enrol in courses totalling 36 credits. Such permission will be granted only to students with outstanding high school records. Students in E2 will similarly be permitted to enrol for 36 credits if they have obtained a Grade Point Average of at least 3.0 in E1.

(x) In some cases students may have passed in high school a subject course offered in E1. This will apply particularly to introductory language courses. Such students may be admitted with advanced standing in this subject. This will not reduce the total number of courses required in (ii) above, but will in some instances permit the completion of a language requirement by passing one college equivalent course rather than two, thereby allowing greater flexibility in course selection.

3.8.3 ENTRANCE REQUIREMENTS

Specific requirements for admission into the second year of the College Equivalent program in Engineering are as follows:

Candidates must pass the following subjects at senior matriculation level with an overall average of 70% and no failures:

English
Mathematics (Analytic Geometry and Calculus)
Physics
Chemistry
Any other subject appropriate to University studies.

3.8.4 TRANSFER STUDENTS

Students of other universities who desire to enter the second year of the College Equivalent program in Engineering must make application to the Admissions Office before March 1 preceding the session they desire to enter. Applicants will be expected to have completed a course of studies equivalent to that of the E1 year described above with particular emphasis on mathematics, physics (mechanics) and chemistry.

3.8.5 LANGUAGE POLICY

The normal language of instruction at McGill is English. Students may if they wish write term papers and examinations in French, but reasonable competence in English is essential to success in the College Equivalent and university programs. A summer course, English 120-E15C, is offered and it is recommended that students who lack fluency in English take this before embarking on a program of collegial studies.

It is clear that Anglophone students from Quebec should acquire a working knowledge of the French language. This will ultimately be entirely the responsibility of schools and CEGEPs but, during the transition period, while McGill is still offering college equivalent programs, it is considered that the university has a responsibility to implement the principle of this policy which it supports warmly.

Every student entering E-1 from English-language high schools in the Province of Quebec will be classified on the basis of his mark in Oral French on the high school leaving examinations. Students with a mark of 80% or more will be considered to have displayed competence in French and need enrol in no further course. Students whose mark is less than 75% must enrol in at least a half course (see below for definition) in Oral and Written French in their first year. Students in the 75% to 80% bracket may elect to study French privately or to enrol in a course in either French language or French literature. In any event, all Quebec students with less than 80% on the high school leaving examination in Oral French are required to pass an oral test in French before the end of their first year at McGill. Students who fail this test must enrol in a course or half course in Oral and Written French in the second year.

Students entering the College Equivalent program from schools outside the Province of Quebec are not required to enrol in French courses, so that they will have an additional option.

3.8.6 COURSES OFFERED

305-E90A,B **Engineering Graphics** (3 credits; 1 lecture, 3 hours problems; an elective course open to all collegial level students but with limited enrolment.) Fundamentals of orthographic projection. Elements of three-dimensional graphic geometry. Representation of mechanical parts, dimensioning, sectional views, revolved and auxiliary views. Freehand drawing.

306-E60A,B **Materials Science** (3 credits; 3 lectures, 2 hours problems, either term; an elective course open to all collegial level students.) Historical significance, mechanical and physical behaviour, polymers and plastics, crystalline materials, phase diagrams, heat treatment, fabrication.

189-E82A **Introduction to Multivariate Calculus and Linear Algebra.** (4 credits; 4 lectures, 1 tutorial, first term; open only to Engineering students; Prerequisite: Calculus II 189-E81B.) Vector functions and their derivatives, partial differentiation, multiple integrals.

189-E83B **Advanced Calculus and Introduction to Differential Equations.** (4 credits; 4 lectures, 1 tutorial, second term; open only to Engineering students; Prerequisite: Introduction to Multivariate Calculus and Linear Algebra 189-E82A.) Complex functions, polynomial equations and the fundamental theorem of algebra, numerical solution of nonlinear algebraic and transcendental equations, elementary linear algebra, ordinary differential equations, infinite series.

198-E32A **Physics (Electricity and Magnetism).** (4 credits; 3 lectures, 1 conference, 2 hours laboratory, first term; open only to Engineering students; Prerequisites: Calculus II 189-E81B, Mechanics 198-E31B; Corequisite: Introduction to Multivariate Calculus and Linear Algebra 189-E82A.) Introduction to the fundamentals of electromagnetism; electrical circuits and electrical measurements. Mathematical techniques are stressed.

198-E33B **Waves and Modern Physics** (4 credits; 3 lectures, 1 conference, 3 hours laboratory alternate weeks, second term; open only to Engineering students; Prerequisites: Introduction to Multivariate Calculus and Linear Algebra 189-E82A, Electricity and Magnetism 198-E32A; Corequisite: Mathematics 189-E83B.) Waves in general, sound waves, wave packets, electromagnetic waves, light, reflection and refraction, interference and diffraction, polarization, modern physics.

4 ACADEMIC REQUIREMENTS

4.1 THE QUEBEC SYSTEM OF EDUCATION

Post-secondary education for students proceeding to university degrees in the Province of Quebec is divided into two distinct levels:

(1) a collegial program normally of two years' duration following junior matriculation, and

(2) a university program normally of three years' duration following completion of the collegial program.

As an interim measure pending the establishment of a network of English language colleges the University has offered a college equivalent program of two years duration. This will be terminated in 1974 and for 1973-74 only its second year will be given.

Details of the program as it applies to the Faculty of Engineering are given in Section 3.9.

The post-collegial university level programs of the Faculty for the 1973-74 session are presented in the following pages.

4.2 DEGREES AND REQUIREMENTS

Professional:

Bachelor of Architecture
Bachelor of Engineering
Bachelor of Engineering (Honours)

Non-Professional:

Bachelor of Science (Architecture)

The basic requirement for the B.Eng. degree is completion, with a cumulative grade point average of 2.00 or better, of a departmental program while registered as a degree candidate. The normal work-load is 15 to 18 credits per semester. A minimum of six semesters is required for completion of any program.

The non-professional B.Sc.(Arch.) degree is similarly structured with similar requirements. The professional B.Arch. degree requires a minimum of two additional semesters to complete the program.

4.3 STUDENT PROGRESS

The session is divided into two semesters with examinations and the evaluation of student progress at the end of each. The course promotion system is employed. Students are allocated a letter grade for each course taken. Their grade point average is computed as described below from a combination of the grade and the credit assigned to a course.

4.3.1 LETTER GRADES

A	Very Good
B	Good
C	Satisfactory
D	Conditional Pass
F	Failed
KF	Incomplete
L	Deferred

Grades A, B and C are permanent grades clearly indicating satisfactory results. Grade D is a permanent grade indicating marginal results which may be acceptable for peripheral courses but not for core courses required by the program. The classification of a course as core or peripheral depends on the individual student's program and will be decided by his department. Grade F is a permanent grade indicating unsatisfactory results. In addition, a student may be assigned categories KF and L. Category KF indicates a temporary deficiency which the student must clear in order to receive credit. Category L, which does not influence grade point average, indicates a deferred grade because of medical or other valid reasons.

4.3.2 COURSE CREDIT

The credit assigned to a particular course reflects the amount of effort it demands of the student. One credit normally represents three hours total work per week. This is in general a combination of lecture hours, other contact hours such as laboratory periods, tutorials and problem periods and personal study. As a guide the average division of time for a course is indicated in hours in the course listing after the course credit. For example 3(3-0-6) indicates a credit of three units consisting of three lecture hours per week, no other contact hours and six hours of personal study per week.

4.3.3 GRADE POINT AVERAGES

Letter grades are assigned *grade points* according to the scheme A=4, B=3, C=2, D=1, F=0, KF=0. Category L is excluded from the calculation of the grade point average which is defined by the ratio

$$\frac{\Sigma \text{ (course credit} \times \text{grade points)}}{\Sigma \text{ course credits}}$$

Summation over all courses taken in one semester gives the semestral grade point average (SGPA) while summation over all courses taken since entry into the program gives the cumulative grade point average (CGPA). All results are included when courses are taken more than once.

4.3.4 STANDINGS

A student's standing is based on his CGPA according to the following criteria.

Satisfactory standing:

2.00 or better

Probationary standing:

1.20 - 1.99 first semester
1.50 - 1.99 subsequent semesters

Unsatisfactory standing:

less than 1.2 first semester
less than 1.5 subsequent semesters

A student must successfully complete the B.Eng. or B.Sc.(Arch.) programs within five years of entry. Candidates admitted to advanced standing will have a correspondingly reduced period in which to complete. Candidates entering the B.Arch. program must complete the degree requirements within two years. Extensions may be granted by the Committee on Standings in cases of serious medical problems or where other similarly uncontrollable factors have affected a student's progress.

Candidates in satisfactory standing may proceed with the following conditions:

(1) All core courses in which D or F grades were obtained must either be repeated successfully (grades A, B or C) or be replaced by an alternative approved course which is completed successfully.
(2) All other courses in which F grades were obtained must either be repeated (grades A,B, C or D) at some point before graduation or be replaced by some alternative approved course which is completed successfully before graduation.

Candidates in probationary standing may proceed for one semester under the same conditions noted above but, in addition, must reduce their load to a maximum of 13 credits per semester and must achieve at the end of the semester either a CGPA of 2.00 or better or an SGPA of 2.5 or better.

Candidates with unsatisfactory standing must withdraw for at least one semester, after which they may be considered for readmission by the Committee on Standings.

4.3.5 REPEATED COURSES

A student who fails to achieve the required results in a course must successfully repeat either it or a substitute course approved by his department. For students who fail prerequisite courses which are offered formally in only one semester, the departments responsible may, in appropriate cases, arrange 'reading courses' during the other semester or during the summer months. Such courses taken during a regular semester constitute a normal part of the candidate's work load which must be reduced correspondingly in the rest of its content.

4.3.6 REREADS OF EXAMINATIONS

A student may request the reread of an examination by applying in writing to the Associate Dean for Student Affairs within three months of the date of the examination. Payment of the $10 reread fee must be enclosed with the application. If the grade is improved as a result of the reread the fee is refunded.

4.4 COURSE NUMBERING SYSTEM

Detailed curricula are listed in the next section under the appropriate school or department. In each case, the courses are grouped under four categories which are common to all programs:

(1) required courses in subjects taught outside the department
(2) required courses in subjects taught inside the department
(3) elective courses in technical subjects to be selected according to rules which vary somewhat from department to department, and
(4) elective courses of a general nature which permit the student to extend his education in areas of relevant personal interest.

A core program comprises all required courses. The course numbers indicate the department of origin by the first three digits as follows:

Science Departments

180 - Chemistry
186 - Geology
189 - Mathematics
198 - Physics

Engineering Departments

300 - Faculty (non-departmental)
301 - Architecture
302 - Chemical Engineering
303 - Civil Engineering and Applied Mechanics
304 - Electrical Engineering
305 - Mechanical Engineering
306 - Mining and Metallurgical Engineering and Applied Geophysics
308 - Computer Science

The fourth digit indicates the level of the course as follows:

(1) all courses numbered -Exx are college equivalent level;
(2) science courses numbered -2xx, -3xx, -4xx are normally taken in the first, second and third years, respectively;
(3) engineering courses are in general numbered according to the levels of prerequisites, i.e. -0xx has no prerequisites, -1xx has one level of prerequisite, etc.

The terminal letters indicate the semester(s) in which the courses are given, i.e. A - Fall, B - Spring, C - Summer, D - Fall and Spring, F - An assignment or project accomplished in the summer but reported in the Fall.

Where asterisks appear with a prerequisite, they have the following significance:

* a D grade is acceptable for prerequisite purposes
** under special circumstances, the Department may permit this course to be taken as a co-requisite.

The curricula and courses described in the following pages have been approved for the 1973/74 session but the Faculty reserves the right to introduce changes as may be deemed necessary or desirable.

5 ACADEMIC PROGRAMS

5.1 The Faculty of Engineering

Dean	George L. d'Ombrain	
Associate Deans		
	Academic	Thomas H. Barton
	Student Affairs	William Bruce
	Planning and Development	Tomas J.F. Pavlasek
Associate Professor of Engineering Practice	John T. Woolsey	
Special Lecturer in Engineering Law	Nat Salomon	

A number of faculty courses are offered. These courses are elective and are of a more general nature than the departmental courses.

300-010A,B Engineering Economy 3(3-0-6). Basic concepts of accounting. Interpretation of financial statements. Mathematics of finance. Techniques for decision making on the acquisition and disposal of capital assets. (Rates of return, uncertainties, risk, retirement and replacement, valuations, leasing, benefit/cost, optimum levels of investment.)
Textbook: Grant and Ireson, Engineering Economy, Fifth Edition, 1970(Ronald).
Professor Woolsey

300-011A Economic Environment 3(3-0-6). Theory of prices. Theory of the firm. Public finance. The banking system. National income. Employment. Labour relations. Inflation. Poverty. Economic growth. Regional economic problems. Engineering applications of micro-economics on engineering decisions.
Students who have taken a course in general economics at college level cannot take 300-011A for credit. Textbook: To be announced.
Professor Woolsey

300-112B Management 3(3-0-6). *Prerequisites: 300-010A,B**, 300-011A or equivalent.* The application of science to management. Coordination of the operations of the business enterprise through planning, organizing, staffing, directing and controlling. Management systems.
Textbook: Koontz & O'Donnell. Principles of Management (McGraw-Hill)
Professor Woolsey

300-020A Engineering Law 2(2-0-4). Definition of law; different branches of law; distinction between civil and criminal law and between civil and common law; statutes, orders in council, and by-laws; Canadian constitutional law and organization of courts; civil law including marriage, tutorship, minority, and interdiction, types of property, rights of ownership, successions, wills and succession duties, expropriation, servitudes, obligations, responsibility for negligence, Workmen's Compensation Act, privileges, hypothecs, registration, prescription, marriage contracts and rights of women, sale, lease and

hire, mandate, engineering and architectural contracts. Responsibility of architect and builder; organization of engineering and architectural professions; patents, trademarks, industrial design and copyright; partnership and companies; mining; railways; expert evidence and evidence generally.

Mr. N. Salomon

300-030A,B Environmental Aspects of Technology 3(3-0-6). Modern society depends for its effective functioning on technology, much of which has far-reaching implications for our environment. The course gives a general view of our technological requirement, discusses potential problem areas and reviews measures for their alleviation. It commences with a general discussion of the urban environment indicating our needs for space, energy and communications. The factors governing energy production are then considered followed by a discussion of transportation systems, vehicles and noise. A survey of our needs for pure water and potential supplies leads to consideration of waste disposal. The public health aspects of water and air pollution are discussed. Finally the application of systems engineering to the whole problem is reviewed.

The course is suitable for U1 level engineering and science students but consideration will be given to admitting any student with a collegial level science background.

The course is taught by a team of professors expert in the particular fields. Grading is on the basis of two short papers and one medium length paper.

5.1.1 Choice of Electives

Students of the Faculty have a considerable choice of electives divided into the categories of free and technical. The choice of electives while wide is limited by timetable considerations and by departmental regulations. The Faculty tries to arrange its timetable to provide maximum choice. The departments publish, in this *Announcement* and in separate documents, information regarding the choice of courses. Students should also consult their course advisers. Some general information applicable to all students of the Faculty is given below. This mainly covers the area of management, a topic of considerable importance to engineers, but also gives information on environmentally oriented courses and materials science.

COURSES IN MANAGEMENT FOR ENGINEERING STUDENTS

Engineering students wishing to take courses in management as part of their electives should note the following.

Courses Available

In addition to the Faculty courses, 300-010, Engineering Economy, 300-011, Economic Environment and 300-112, Management, the following Faculty of Management core courses are available, subject to timetable requirements, to Engineering students. Core courses not listed are not available since they include a significant proportion of material covered in the Engineering programs.

Accounting I	280-211A,B
Behavioural Science I	280-221A
Behavioural Science II	280-222B
Behavioural Science III	280-323A,B
Finance I	280-341A,B
Managerial Economics	280-393A,B
Marketing Management	275-352B

ENGINEERING

1. Students interested in an overall view of management should take one or more of the following

Engineering Economy	300-010A,B
Economic Environment	300-011A
Management	300-112B

2. Students wanting a more detailed treatment should choose

	Economic Environment	300-011A
or	Principles of Economics	154-200 (at the CEGEP level)

followed by

Managerial Economics	280-393A

and one or more of the following

Accounting I	280-211A,B
Finance	280-341B
Marketing Management	275-352B

3. Students interested in behavioural and social sciences should note that

Behavioural Science I	280-221A
Behavioural Science II	280-222B (prerequisite: 280-221)
Behavioural Science III	280-323A,B (prerequisite: 280-222)

are well adapted to engineering needs.

4. The following comments are provided to assist students in the selection of the three courses offered within the Faculty.

300-010A,B Engineering Economy
This course is unique on the campus. There is little duplication of subject matter with other undergraduate courses in the University. It is designed for students in the penultimate and final years of Architecture and Engineering. While there are no prerequisites, *it is not recommended for students in U1.*

300-011A Economic Environment
This is offered for students who are interested in socio-economic environment and who did not take a course in general economics, such as 154-200D, Principles of Economics, at the CEGEP level. Students who have a course in general economics at the college level may not take it for credit. If they are interested in further work in economics, they should take Managerial Economics, 280-393A, in the Faculty of Management.

300-112B Management
This is an introduction to management for students in the penultimate and final years who do not intend to go on to an M.B.A. program. The prerequisites are 300-010A,B, Engineering Economy, and 300-011A, Economic Environment (a course in general economics at the college level is acceptable in place of 300-011A). Students who took Management, 278-E82B, at the college level or courses in Behavioural Science in the Faculty of Management may not take this course for credit. If these students wish to take further courses in management subjects, they are advised to take university-level courses in the Faculty of Management.

MINOR IN MANAGEMENT

The attention of students interested in pursuing an integrated program in management is drawn to the Minor in Management which comprises the following six courses:

Accounting I	280-211A,B
Behavioural Science II	280-222B
Behavioural Science III	280-323A,B
Finance I	280-341A,B
Managerial Economics	280-393A,B
Marketing Management	275-352B

Prerequisite to entry to this program is satisfactory performance in a collegial course in general economics e.g. 385-915-71 or 383-920-71, or the McGill collegial equivalent course 154-200, or the Faculty course 300-011.

Since the program contains 18 credits it cannot be completed within the departmental free elective allowances. A student taking it must therefore either accept additional load, take additional time, or have his department's permission to count some Management courses as technical electives.

ENVIRONMENTAL STUDIES

The Faculty offers an elective course, Environmental Aspects of Technology, 300-030, which gives an overall view of the environmental aspects of technology and discusses ways in which ill-effects can be minimised. The course is of a general nature and is most suited to students in their first year.

Many other courses offered by the Faculty, especially in the School of Architecture and in the Departments of Chemical and of Civil Engineering, have a strong environmental orientation. Courses involving urban systems, traffic flow, water purification and waste disposal are available as are more general courses on combustion, energy conversion and the chemical processing of gases and fluids. The student interested in these topics should consult with his departmental adviser in order to plan a coherent set of studies.

MATERIALS SCIENCE

Materials such as structural steel and reinforced concrete, high-alloy heat-resistant steels, composites such as fibreglass, polymers such as polyethylene and highly refined exotic materials such as germanium and silicon are of vital importance to engineers. A survey of the properties and characteristics of a wide range of such materials is provided by the elective, Materials Science, 306-E60A,B, offered by the Department of Metallurgy. The course 303-001A, Structural Materials, offered by the Department of Civil Engineering, treats similar material from a somewhat different viewpoint. Both courses are especially suitable for students in their first year. More advanced and specialized courses are provided by the departments and students should consult their departmental advisers regarding their choice.

5.2 SCHOOL OF ARCHITECTURE

Director

Norbert Schoenauer

Associate Director

Derek Drummond

Professors

John Bland
Peter Collins
Stuart Wilson

Visiting Professors

Raymond Affleck
Thomas Blood

Associate Professors

Bruce Anderson
Derek Drummond
David Farley
Norbert Schoenauer
John Schreiber
Radoslav Zuk

Assistant Professors

Joseph Baker
Brian McCloskey

Research Associate

Alvaro Ortega

Sessional Lecturers

Leslie Doelle
Roy LeMoyne
Seymour Levine
Harry Mayerovitch
Arthur Mendel
Gentile Tondino
Orson Wheeler

The McGill architectural program is divided into two parts. The first leads to a non-professional degree Bachelor of Science (Architecture), as a preparation for activities related to architecture or a first and basic stage in professional architectural education. The second, consisting of a minimum of two semesters for those with the McGill B.Sc. (Arch.), leads to the professional degree Bachelor of Architecture which has long been recognized by the Province of Quebec Association of Architects and the Royal Institute of British Architects as representing completion of their educational requirements for membership. The Bachelor of Architecture degree is also recognized by the Commonwealth Association of Architects. Candidates in the first part of the program who plan to go on to the professional degree must follow the series of required and elective courses stipulated for professional studies. Others who intend to enter activities related to architecture may make appropriate substitutions for certain of the required courses in order to improve their preparation for studies in related areas.

Curriculum for the B.Sc.(Arch.) Degree

Required Courses

		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
303-005A,B	Mechanics I	4	
*303-089A	Building Materials	2	
303-109B	Surveying	3	
303-183B	Strength of Materials	4	
*303-284A	Soil Mechanics and Foundations	2	
*303-285A	Structural Steel Design	2	
*303-288B	Reinforced Concrete Design	2	
*303-392A	Structures	2	
308-100A	Introduction to Computers	3	24
ARCHITECTURAL SUBJECTS			
301-001A	History of Architectural Theory I	3	
301-010A	Communication, Behaviour and Architecture	6	
301-012A	Freehand Drawing I	1	
301-102B	History of Architectural Theory II	1	
301-111B	Architectural Graphics and Design Elements	6	
301-113B	Freehand Drawing II	1	
301-214A	Freehand Drawing III	1	
301-216F	Sketching School I	1	
301-250F	Summer Project I	1	
301-315B	Freehand Drawing IV	1	
301-320A	Design and Construction I	6	
301-421B	Design and Construction II	6	
301-422A	Design and Construction III	6	
*301-441B	Mechanical Services	2	
*301-442A	Electrical Services	2	
*301-443B	Environmental Acoustics	2	
301-451F	Summer Project II	1	
One of			
302-423B	Design and Construction IV	6	
301-424B	Design and Construction V	6	6 53

*Candidates intending not to proceed to the B.Arch. degree may substitute other courses of equal total weight for any of these.

ENGINEERING

Elective Courses

To be selected from those offered by the School (listed below) and/or a sequence of approved courses from other departments.

Architectural Electives

301-203A	The Evolution of Standardization in Urban Spaces	2	
301-204B	History of Architecture in Canada	2	
301-205A	History of Housing	2	
301-230B	Landscape	2	
301-232A	Structure of Cities	2	
301-235A	Site Usage	2	
301-407A	Seminar on Architectural Judgement	2	
301-408A	Seminar on Architectural Theory in the 20th Century	2	
301-409B	Seminar on Legal Aspects of Environmental Control	2	
301-431A	Civic Design	2	20
	Total		97

Curriculum for the B.Arch. Degree

Required Courses				Course Credit
NON-DEPARTMENTAL SUBJECTS				
300-010A,B	Engineering Economy		3	
300-020A	Engineering Law		2	5
ARCHITECTURAL SUBJECTS				
301-317F	Sketching School II		1	
301-433A	Urban Planning I		2	
301-434B	Urban Planning II		2	
301-444A	Professional Practice		2	
301-445B	Specifications		2	
301-452F	Summer Project III		1	
Any two of				
301-425A,B	Design and Construction VI	7		
301-426A,B	Design and Construction VII	7		
301-427A,B	Design and Construction VIII	7	14	24
	Electives			4
	Total			33

Curriculum for the B.Sc.(Arch.) Degree

Required Courses		Course Credit		
NON-DEPARTMENTAL SUBJECTS				
303-005A,B	Mechanics I	4		
*303-089A	Building Materials	2		
303-109B	Surveying	3		
303-183B	Strength of Materials	4		
*303-284A	Soil Mechanics and Foundations	2		
*303-285A	Structural Steel Design	2		
*303-288B	Reinforced Concrete Design	2		
*303-392A	Structures	2		
308-100A	Introduction to Computers	3		24
ARCHITECTURAL SUBJECTS				
301-001A	History of Architectural Theory I	3		
301-010A	Communication, Behaviour and Architecture	6		
301-012A	Freehand Drawing I	1		
301-102B	History of Architectural Theory II	1		
301-111B	Architectural Graphics and Design Elements	6		
301-113B	Freehand Drawing II	1		
301-214A	Freehand Drawing III	1		
301-216F	Sketching School I	1		
301-250F	Summer Project I	1		
301-315B	Freehand Drawing IV	1		
301-320A	Design and Construction I	6		
301-421B	Design and Construction II	6		
301-422A	Design and Construction III	6		
*301-441B	Mechanical Services	2		
*301-442A	Electrical Services	2		
*301-443B	Environmental Acoustics	2		
301-451F	Summer Project II	1		
One of				
302-423B	Design and Construction IV	6		
301-424B	Design and Construction V	6	6	53

*Candidates intending not to proceed to the B.Arch. degree may substitute other courses of equal total weight for any of these.

Elective Courses

To be selected from those offered by the School (listed below) and/or a sequence of approved courses from other departments.

Architectural Electives

301-203A	The Evolution of Standardization in Urban Spaces	2	
301-204B	History of Architecture in Canada	2	
301-205A	History of Housing	2	
301-230B	Landscape	2	
301-232A	Structure of Cities	2	
301-235A	Site Usage	2	
301-407A	Seminar on Architectural Judgement	2	
301-408A	Seminar on Architectural Theory in the 20th Century	2	
301-409B	Seminar on Legal Aspects of Environmental Control	2	
301-431A	Civic Design	2	20
	Total		97

Curriculum for the B.Arch. Degree

Required Courses			Course Credit
NON-DEPARTMENTAL SUBJECTS			
300-010A,B	Engineering Economy	3	
300-020A	Engineering Law	2	5
ARCHITECTURAL SUBJECTS			
301-317F	Sketching School II	1	
301-433A	Urban Planning I	2	
301-434B	Urban Planning II	2	
301-444A	Professional Practice	2	
301-445B	Specifications	2	
301-452F	Summer Project III	1	
Any two of			
301-425A,B	Design and Construction VI	7	
301-426A,B	Design and Construction VII	7	
301-427A,B	Design and Construction VIII	7	14 24
	Electives		4
	Total		33

COURSES OFFERED BY THE SCHOOL

Elective courses are indicated by the symbol •

301-001A **History of Architectural Theory I** 3(3-0-6). An introduction to the study of architectural ideas. Professor Collins

301-010A **Communication, Behaviour and Architecture** 6(2-10-6). Design in relation to human communication and behaviour. Visual perception and architectural expression. Techniques of visual communication and graphic design. Modelling with wet materials. Shaping and forming dry materials. Models. Photographic methods of designing and recording. Basic printing methods including silkscreen. Orthographic projection, sketching and architectural drawing. Professor Anderson

301-012A **Freehand Drawing I** 1(0-3-0). Drawing in pencil and charcoal. Mr. Tondino

301-102B **History of Architectural Theory II** 3(3-0-6). *Prerequisite: 301-001A *.* A study of architectural ideals of the present century and of the technological and sociological developments which affected them. Professor Collins

301-111B **Architectural Graphics and Elements of Design** 6(2-10-6). *Prerequisite: 301-010A.* Orthographic projections, measured drawings, perspective and other conventional representations of architectural elements with reference to their spatial qualities, effects of light, colour and texture. Diagrams and lettering. Professor Drummond

301-113B **Freehand Drawing II** 1(0-3-0). *Prerequisite: 301-012A *.* A continuation of course 301-012A. Mr. Tondino

•301-203A **The Evolution of Standardization in Urban Spaces** 2(2-0-4). *Prerequisite: 301-102B.* A historical survey of tectonic theories related to the creation of orderly urban environments in the 16th, 17th and 18th centuries; the theories of standardization as applied to the classical "Orders" and their relevance to standardized building components today. Professor Collins

•301-204B **History of Architecture in Canada** 2(2-0-4). *Prerequisite: 301-102B.* French, British and American influences in the Maritime Provinces, Quebec and Ontario. Professor Bland

•301-205A **History of Housing** 2(2-0-4). *Prerequisite: 301-102B.* Indigenous housing both transient and permanent, from the standpoint of individual structure and pattern of settlements. The principal historic examples of houses including housing in the age of the industrial revolution and contemporary housing. Professor Schoenauer

301-206B **Philosophy of Structure** 2(2-0-4). *Prerequisite: Satisfactory completion of courses in the Civil Engineering program totalling 45 credits.* An inquiry into the principles and factors underlying the development and forms of structures, natural and man-made, and the application of these principles to current design problems. Mr. Mayerovitch

301-214A **Freehand Drawing III** 1(0-3-0). *Prerequisite: 301-113B*.* A continuation of course 301-113B. Mr. Tondino

301-216F **Sketching School I** 1. *Prerequisite: 301-311B.* A ten day supervised field trip in the late summer to sketch places or things having specific visual characteristics. Students are required to include Sketching School I in the B.Sc.(Arch.) program. Professor Wilson & Mr. Tondino

•301-230B **Landscape** 2(2-2-2). *Prerequisite: 301-102.* Land form, plant life, microclimate; land use and land preservation; elements and methods of landscape design. Professor Schreiber

•301-232A **Structure of Cities** 2(2-2-2). *Prerequisite: 301-102B.* Historical and analytical review of cities and the social, economic, physical and political factors that have determined their location, form, growth or decline. Professor Bland

•301-235A Site Usage 2(2-2-2). *Prerequisite: 301-111B.* Arrangement of building developments on the land. Composite patterns resulting from site planning decisions. Scale and distribution of open space. Utilization of space; relationship of private to public domain; spatial determinism and its effect on interaction and development; qualities of interaction and development; qualities of street-scale open space. Site conditions and restrictions. Site engineering, building layout, drainage and services. Regulatory mechanism; incentive and mandatory controls.
Professor Drummond

301-250F Summer Project I 1. *Prerequisite: 301-111B.* These projects are assigned by staff members before the end of the session after discussion with the students in terms of objectives, techniques, etc. **Professor Wilson**

301-315B Freehand Drawing IV 1(0-3-0). *Prerequisite: 301-214A*.* A continuation of course 301-214A. **Mr. Tondino**

301-317F Sketching School II 1. *Prerequisite: 301-216F.* Students are required to include Sketching School II in the B.Arch. program. **Professor Wilson & Mr. Tondino**

301-318B Freehand Drawing and Sketching 1(0-3-0). *Prerequisite: 301-216F.* Drawing and sketching in pencil, charcoal and other media both in the studio and out of doors.
Mr. Tondino

301-320A Design and Construction I 6(2-10-6). *Prerequisite: 301-111B.* A study of man's need for shelter and for humane environmental amenities. The characteristics of modern building materials and techniques of construction on open sites. Methods of building durable, agreeable and purposeful structures. Design methodology. Aspects of ecology related to architectural design. **Professor Wilson**

•301-407A Seminar on Architectural Judgement 2(2-0-4) *Prerequisite: 301-421B*.* The investigation, by means of analogies with the judicial process in Law, of the criteria of architectural judgement. **Professor Collins**

•301-408A Seminar on Architectural Theory in the 20th Century 2(2-0-4). *Prerequisite: 301-423B or 301-424B.* Seminar to allow specific modern architectural problems of design to be studied in detail. **Professors Bland & Zuk**

•301-409B Seminar on Legal Aspects of Environmental Control 2(2-0-4). *Prerequisite: 301-407A.* A survey of those aspects of Canadian law which can protect or beneficially modify the environment in the interests of the community.
Professor Collins

301-421B Design and Construction II 6(2-10-6) *Prerequisite: 301-320A.* Instruction in the design of buildings with particular emphasis on considerations of construction, structural adequacy, weather and fire resistance, building codes and industrialized building systems. Working drawings and models. **Professor Wilson**

301-422A Design and Construction III 6(2-10-6). *Prerequisite: 301-421B.* A more developed study of the process of forming an architectural concept involving considerations of purpose, site, desirable spatial relationships, efficient lines of movement, appropriate choice of material, structure and methods of construction, all related to judgements concerning appearance, economy and human relevance. Diagrammatic plans, sections and rough models. **Professors Bland & Staff**

301-423B Design and Construction IV 6(2-10-6). *Prerequisite: 301-422A.* A detailed study of the development of an architectural proposal for a comprehensive building involving a coherent initial concept and subsequent decisions as to the means of fulfilling the requirements skillfully and economically. Preliminary working drawings. **Staff**

301-424B **Design and Construction V** 6(2-10-6). *Prerequisite: 301-422A.* A detailed study of the function and structure of the urban environment, including surveys of selected urban areas by recording and analysing specific environmental factors. Architectural and urban design with specific reference to their social implications. Urban renewal and rehabilitation by means of systematic design methods. Techniques of instructional publicity including documentary film-making.
Professor Anderson

301-425A,B **Design and Construction VI** 7(2-12-7). *Prerequisite: 301-423B or 301-424B.* A detailed study of the organization of multiple units in a problem involving the repetition of elements with appropriately integrated functional, structural and mechanical systems. Principles of problem analysis, programming, site planning, legal considerations, structural possibilities, feasibility and cost studies.
Professor Schoenauer & Visitors

301-426A,B **Design and Construction VII** 7(2-12-7). *Prerequisite: 301-423B or 301-424B.* A study of exceptional problems of architectural design in terms of community needs but always involving specific environmental modifications of an actual place to achieve some physical or social betterment. Professor Baker

301-427A,B **Design and Construction VIII** 7(2-12-7). *Prerequisite: 201-423B or 301-424B.* A study of complex environmental problems involving conflicting requirements, severe restraints, optimization, adaptability to growth and change, and the integration of building systems. Development of systematic design methods leading to a comprehensive environmental form.
Professor Zuk & Visitors

•301-431A **Civic Design** 2(2-2-2). *Prerequisite: 301-421B.* The elements of form in buildings and their siting: design in the urban setting. Professor Drummond

301-433A **Urban Planning I** 2(2-2-2). *Prerequisite: 301-423B or 301-424B.* Theory and practice. An examination of different basic approaches to urban planning with examples.
Professor Farley

301-434A,B **Urban Planning II** 2(2-2-2). *Prerequisite: 301-433A.* Theory and practice seminar. Detailed analysis of selected examples of the urban planning process, recent and from the past. Each student will be expected to prepare and present a case study.
Professor Farley

301-441B **Mechanical Services in Building** 2(2-2-2). *Prerequisite: 301-421B.* Problems encountered in providing mechanical services in buildings. Physiological and environmental aspects of heat, ventilation and air conditions, estimation of heating and cooling loads and selection and specification of equipment. Sprinkler systems and plumbing. Construction problems produced by installation of this equipment.
Mr. Levine

301-442A **Electrical Services** 2(2-2-2). *Prerequisite: 301-421B.* Production, measurement and control of light; design of lighting systems; electrical distribution in residential and commercial buildings; Canadian Electrical Code. Mr. Mendel

301-443B **Environmental Acoustics** 2(2-2-2). *Prerequisite: 301-421B.* Significance of acoustics in architectural design, and in environmental control of buildings. Acoustical requirements in the design of auditoria such as theatres, lecture halls, opera houses, concert halls, churches, motion picture theatres, studios, etc. Principles of noise and vibration control, sound insulating in building construction. Control of mechanical noises and vibrations. Practical noise control in various types of buildings.
Mr. Doelle

301-444A Professional Practice 2(2-2-2). *Prerequisite: 301-423B or 301-424B.* The architect's relationship to his client; responsibility; business conduct; supervision; arbitration; issuing of certificates; competitions; standard forms of contracts; payment; liens; servitudes; public health; building regulations; fees. Mr. LeMoyne

301-445B Specifications 2(2-2-2). *Prerequisite: 301-423B or 301-424B.* Principles of writing architectural specifications; discussion of actual specifications; essays on common building materials and construction practices; practice in specifying for common trades. Mr. LeMoyne

301-451F Summer Project II 1. *Prerequisite: 301-421B.* See course 301-250F. Professor Bland

301-452F Summer Project III. *Prerequisites: 301-423B or 301-424B.* See course 301-250F. Professors Baker, Schoenauer & Zuk

5.3 DEPARTMENT OF CHEMICAL ENGINEERING

Chairman

G.A. Ratcliff

Professors

G.A. Ratcliff
W.J.M. Douglas

Associate Professors

J. Brunet
R. Clift
J.M. Dealy
E.J. Farkas
O.M. Fuller
J.R. Grace
M.R. Kamal
S.B. Lang
M.E. Weber

Assistant Professor

J.M. Charrier

Special Lecturers

R.L. Clare
N.E. Cooke
J.D.B. Ogilvie

Senior Research Associate

W.H. Gauvin

Associate Members

H.L. Goldsmith (Experimental Medicine)
J.L. Neal (Paediatrics)

Chemical Engineering is concerned with processes in which matter undergoes chemical and physical changes in order to create useful products. Fields in which chemical engineers work include synthetic fibres, space, nuclear energy, antibiotics, plastics, oil and petro-chemicals, fertilizers, pollution control and a host of others. Among specific examples of chemical engineering work are the development of the artificial kidney, the production of epoxy resins, which are used to make fibreglass for such applications as boats and shells of rockets; and the removal of sulphur dioxide from metallurgical stack gases to eliminate an atmospheric pollutant and recover a useful material.

Since the techniques employed and the materials available in the process industries are continually changing, the chemical engineer is constantly faced with new challenges. New ideas are first followed up by research on a small scale in a laboratory. If this preliminary work looks economically attractive, the chemical engineer is faced with the development of the new process from the laboratory scale (grams) to the commercial unit (tons). Experimental information on intermediate size equipment (a pilot plant) is likely to be necessary to design the full-scale plant. After construction of the plant, chemical engineers are responsible for its operation and management. Other chemical engineers are involved with technical sales and service, with economic and technical planning and with all aspects of company management. A substantial number of our graduates also find that our curriculum provides an excellent preparation for courses and careers in law, medicine, and teaching.

The Chemical Engineering curriculum is based on fundamentals in order to provide understanding of physical and chemical principles and their application. Some courses are given by Special Lecturers, engineers from local industry who bring practical relevance to undergraduate teaching. Departmental electives are offered in a wide variety of subjects including polymer and textile engineering and pollution control. Courses allowing specialization in food processing are currently being developed with the first of these to be given in 1973-74. Students may also take more advanced courses at the graduate level as technical electives.

Since technical electives alone do not make a modern engineer, students are encouraged to broaden their interests by means of general electives. These may be chosen from any department in the university subject only to timetable constraints and approval from the course instructor and faculty adviser. Students who have successfully completed Chemistry 202, Chemistry 301, and/or Mathematics 303 at the CEGEP level will have more electives open to them during their university studies.

Curriculum for the B.Eng. Degree in Chemical Engineering

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
180-212A,B	Introductory Organic Chemistry I	4	
180-213A,B	Introductory Physical Chemistry I	3	
180-250A	Selected Topics in Organic and Physical Chemistry	3	
189-382A	Introduction to Statistics	3	
189-285A,B	Mathematics I	4	
189-286B	Mathematics II	4	
308-080A	Computers in Engineering	2	23
CHEMICAL ENGINEERING SUBJECTS			
302-001A	Chemical Process Principles I	4	
302-021A	Chemical Thermodynamics I	3	
302-097A	Technical Paper I	1	
302-122B	Chemical Thermodynamics II	3	
302-131B	Fluid Mechanics	4	
302-191B	Instrumental Measurements Laboratory	2	
302-198A	Technical Paper II	1	
302-202B	Chemical Process Principles II	3	
302-211A	Heat Transfer	4	
302-212B	Mass Transfer	3	
302-241B	Chemical Reactor Design	3	
302-251A	Separation Processes	3	
302-292A	Chemical Engineering Laboratory I	2	
302-293B	Chemical Engineering Laboratory II	2	
302-303B	Chemical Process Economics	3	
302-371A	Process Control	3	44
And either			
302-353A	Process Design	3	
302-454B	Design Project	4	
or			
302-394A	Research Project and Seminar	3	
302-495B	Research Project and Seminar	4	7
Elective Courses			
RESTRICTED ELECTIVES			
	Courses to be selected from those approved by the Department. Students are encouraged to take a sequence of courses in a selected area (Polymer/Textile Engineering, Pollution Control or Food Technology).		7
FREE ELECTIVES			
	Approximately five courses.		13
	Total		94

COURSES OFFERED BY THE DEPARTMENT

Elective courses are indicated by the symbol •

302-001A **Chemical Process Principles I** 4(3-0-9). *Co-requisite: 189-285A.* Solution of chemical engineering problems by the application of the laws of conservation of mass and energy. Applications in steady and transient processes.
Professor Weber

302-021A **Chemical Engineering Thermodynamics I** 3(3-0-6). *Co-requisite: 189-284A.* Classical versus microscopic point of view; work and energy concepts; First law; heat and internal energy; thermochemistry; flow processes; use of property tabulations; Second law; reversible processes and entropy; heat engine and refrigeration cycles; relationships between thermodynamic properties; equations of state; estimation of fluid properties; mechanical energy balance; phase equilibrium in single component systems.
Professor Dealy

302-097A **Technical Paper I** 1(0-0-3). A technical paper prepared according to instructions issued by the Department.
Professor Lang

302-122B **Chemical Engineering Thermodynamics II** 3(3-0-6). *Prerequisite: 302-021A.* Thermodynamics of mixtures, equilibrium between single and multi-component phases, thermochemistry, chemical reaction equilibrium, surface energy.
Professor Lang

302-131B **Fluid Mechanics** 4(3-1-8). *Co-requisite: 189-286B.* Fluid properties; fluid statics; basic concepts and equations of fluid dynamics including the continuity and Navier-Stokes equations, Bernoulli's equation and application to flow measuring devices; dimensionless groups and similitude; momentum theorems, pumps; two dimensional potential flow; drag and boundary layers; pipe flow; losses in valves and fittings.
Professor Grace

302-191B **Instrumental Measurements Laboratory** 2(0-3-3). *Prerequisite: 302-021A*. Co-requisite: 302-131B.* Techniques for measurement of properties of solids, liquids, and gases; application of these techniques in practice; selection of measurement techniques for engineering applications.
Professor Charrier

302-198A **Technical Paper II** 1(0-0-3). *Prerequisite: 302-097A.* A technical paper prepared according to instructions issued by the Department.
Professor Douglas

302-202B **Chemical Process Principles II** 3(3-0-6). *Prerequisites: 302-001A, 180-250A*.* Applications of physical, organic and inorganic chemistry to case studies in chemical process contexts. The cases chosen emphasize process and product development in the Canadian chemical industry.
Professor Fuller

302-211A **Heat Transfer** 4(3-0-9). *Prerequisites: 302-021A*, 302-131B*, 189-286A,B*.* Transport of heat by conduction; transport by convection in free and forced flows; transport by radiation. Mathematical formulation and solution of heat transfer problems. Design of heat transfer equipment.
Professors Ratcliff & Weber

302-212B **Mass Transfer** 3(3-0-6). *Prerequisites: 302-001A, 302-131B*.* Transport of matter by diffusion. Transport by convection in free and forced flows. Design of mass transfer equipment: distillation columns, packed bed contactors, etc.
Professor Douglas

302-241B **Chemical Reaction Engineering** 3(3-0-6). *Prerequisites: 302-001A, 180-250A*.* Application of kinetics of homogeneous chemical reactions in calculating reactor size, production rate, selectivity and yield; interaction between chemical reaction and heat transport; kinetics of heterogeneous catalysis; catalyst properties; mass and heat transfer in heterogeneous reactions; reactor size and production rate for heterogeneous reactions.
Professor Fuller

302-251A **Separation Processes** 3(3-0-6). *Prerequisites: 308-080A, 302-001A*, 302-122B*.* Analysis of separation processes using macroscopic material and energy balances; applications to distillation and extraction; design of staged cascades; performance of real systems; selection of operating conditions and contacting equipment.
Professor Clift

•302-252A **Particulate Systems** 3(3-0-6). *Prerequisites: 302-001A, 302-131B*.* Study of operations involving multiphase systems with one of the phases finely sub-divided as bubbles, drops or particles. Applications in evaporation, crystallization, fluidization, etc.
Professor Farkas

•302-283A **Industrial Rheology** 2(1-1-4). *Prerequisites: 302-131B or equivalent.* An introduction to the basis of mechanical testing of viscous liquids and pastes in the process industries. Topics include: fundamentals of rheology; classification of material responses; instrumentation for rheological measurements; applications to the petroleum, plastics, food processing and pharmaceuticals industries.
Professor Dealy

302-292A **Chemical Engineering Laboratory I** 2(0-3-3). *Prerequisite: 302-191B; Co-requisite: 189-382A.* Instruction on planning and execution of experimental projects; effective work in groups; selected laboratory exercises on chemical engineering topics.
Staff

302-293B **Chemical Engineering Laboratory II** 2(0-3-3). *Prerequisite: 302-292A*.* Guided practice in planning and executing experimental projects on chemical engineering topics.
Staff

•302-299A,B **Projects in Chemical Engineering I** 2(1-0-5). *Prerequisite: 302-001A*.* Projects on social or technical aspects of chemical engineering practice. Students must suggest their own projects to be approved and supervised by a member of the staff.
Staff

302-303B **Chemical Process Economics** 3(3-0-6) *Prerequisites: 302-211A*, 302-251A*.* Quantitative analysis of economic problems relating to chemical processes. Evaluation of economic optima for operating plants. Methods of cost estimation for new plants. Interest and investment costs; depreciation; alternative investments.
Professor Clift & Dr. Ogilvie

•302-304A **Pollution Control in the Chemical Industry** 2(2-0-4). *Prerequisites: 302-212B.* Basic considerations of air and water pollution control measures. Ambient air quality criteria, dispersion formula, stack design area surveys and methods of treatment. Water quality criteria, water surveys, and methods of treatment.
Dr. Cooke

302-353A **Process Design** 3(3-0-6). *Prerequisites: 302-211A*, 302-212B*, 302-251A**.* Integration of unit operations and chemical engineering science in the design of chemical plants. The evaluation of the optimum combination of the purchase price and operating costs is emphasized.
Mr. Clare

•302-361B **Digital Computers in Process Calculation** 2(2-0-4). *Prerequisites: 189-284A, 302-251A.* Solution of chemical engineering problems involving the use of machine computation.
Staff

302-371A **Process Control** 3(3-0-6). *Prerequisites: 302-001A, 302-211A*.* Primitive ideas; process dynamics; control systems; frequency response; stability; synthesis and design of control systems.
Professor Brunet

•302-381B **Polymer Engineering** 3(3-0-6). *Prerequisites: 302-131B, 180-250A.* The application of engineering fundamentals to the preparation and processing of polymers. Classification and characterization of polymers, reaction media and kinetics of polymerization, reactor design, mechanical behaviour of polymers, visco-elasticity and rheology, processing techniques; extrusion, molding, etc.
Professor Kamal

•302-386B Textile Technology 3(3-0-6). *Prerequisite: 302-131B or equivalent.* Application of engineering principles to the following topics: Chemical constitution and properties of fibre-forming polymers, theories of fibre structure; relations between molecular structure and properties of natural and man-made fibres; staple and filament yarns; blending of fibres; effect of operating variables on yarn properties; weaving and knitting technology; finishing of fibres, textile testing.
Professor Kamal

302-394A Research Project and Seminar 3(1-6-2). *Prerequisite: 302-293B.* Independent study and experimental work on a topic chosen by consultation between the student and the Departmental staff.
Staff

•302-399A,B Projects in Chemical Engineering II 2(1-0-5). *Prerequisite: 302-299A,B.* Projects on social or technical aspects of chemical engineering practice. Students must suggest their own projects to be approved and supervised by a member of the staff.
Staff

302-454B Design Project 4(2-0-10). *Prerequisite: 302-353A.* Process design brief will be prepared for an industrial system involving heat and mass transfer operations. The topic will be assigned to give sufficient scope for selecting design alternatives.
Dr. Cooke & Mr. Clare

302-495B Research Project and Seminar 4(1-9-2). *Prerequisite: 302-394A.* Independent study and experimental work on a topic chosen by consultation between the students and the Departmental staff.
Staff

5.4 DEPARTMENT OF CIVIL ENGINEERING AND APPLIED MECHANICS

Chairman

R.G. Redwood

Professors

J.L. deStein
R.N. Yong

Associate Professors

R.G. Cox
P.J. Harris
R.D. Japp
S. Mirza
J.C. Osler
A. Pakalnins
R.G. Redwood
D.A. Selby
S.B. Savage
C.J. Turkstra

Assistant Professors

V. Chu
A.R. Cook
E. McKyes
D. Panagiotakopoulos

Visiting Assistant Professor

R.G. Sisodiya

Research Associates

A. Chattopadhyay
D.Y. Hsu
D.E. Sheeran

Part-Time Staff

Professors

G. Cavadias
J.O. McCutcheon

Associate Professor

L.J. Arcand

Special Lecturers

A. deGouville
J.B. Jutasi
R.M. King
N.W.E. Lee

Civil Engineering can be defined as that branch of engineering which deals with systems of constructed facilities. Responsibilities of Civil Engineers thus include the planning, development, and construction of transportation systems, urban services, resource development projects, waterways, and structures varying from skyscrapers to rocket vehicles. Applied mechanics refers to branches of science and analysis upon which the practice of civil engineering is based.

As with all other branches of engineering, rapidly expanding knowledge in science and mathematics coupled with the development of computers has led to great changes in the practice of civil engineering. The curriculum of this Department fully reflects these changes, and the foundation provided will enable graduates to cope with further changes in the future.

The required courses ensure a sound scientific and analytical basis for professional studies through courses in mechanics, solid mechanics, fluid mechanics, soil mechanics, structural analysis, systems analysis and mathematics. Fundamental concepts are applied to various fields of practice in both required and elective courses.

By a suitable choice of elective courses, a student can attain advanced levels of technical knowledge in particular specialized areas. After completing such a program, he will then be well prepared for a professional career or for graduate studies at any prominent university in North America or abroad. In professional practice the civil engineer may be concerned with detailed design, or with planning and project management, both requiring the technical understanding provided by his engineering studies; he may be concerned with projects varying in size from those costing multi-millions of dollars to small schemes costing several thousands of dollars. Diverse professional careers may be followed in either the private or public sectors.

Alternatively, a student can elect to develop his interests in a more general way by combining courses within the department with courses from other departments or faculties. Such a general program of studies in civil engineering has proven to be an excellent basis for careers in urban government and business management.

Curriculum For The B.Eng. Degree in Civil Engineering And Applied Mechanics

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
*186-221A	General Geology	4	
189-285A,B	Mathematics	4	
189-286B	Mathematics	4	
305-090A	Engineering Graphics II	2	
308-080A	Computers in Engineering	2	
And either			
304-181B	Electric Power	3	
or			
306-012A	Engineering Thermodynamics	3	19
CIVIL ENGINEERING SUBJECTS			
303-001A	Structural Materials	2	
303-002A	Probabilistic Systems	3	
303-003A	Technical Reporting	1	
303-004C	Technical Papers	2	
303-005A,B	Mechanics I	4	
303-106B	Mechanics II	3	
303-107A,B	Solid Mechanics	4	
303-108B	Deterministic Systems	3	
303-109B	Surveying	3	
303-110A	Sanitary Engineering	2	
303-211B	Fluid Mechanics	4	
303-212A	Soil Mechanics	4	
303-213A	Structural Analysis	3	
303-214A	Structural Design I	3	
303-215B	Structural Design II	3	
303-216B	Transportation Economics	2	
303-317B	Foundations	3	
303-318B	Project	3	52

*Or alternate if equivalent has been taken.

Elective Courses

TECHNICAL ELECTIVES

	Approximately six courses to be selected from those listed below offered by the Department, or from other suitable graduate or undergraduate courses.	17
303-133B	Urban Planning	
303-230B	Municipal Systems	
303-231A	Stream Pollution and Control	
303-232B	Hydrology	
303-235A	Geometronics	
303-236B	Traffic Flow Systems	
303-239B	Photogrammetry and Interpretation	
303-338A	Hydraulics	
303-350A	Soil Behaviour	
303-351A	Highway and Airport Design	
303-360A	Structural Theory I	
303-361B	Structural Theory II	
303-362A	Design in Metals	
303-363A	Design in Concrete	
303-364B	Experimental Stress Analysis	
303-370A	Research Project	

GENERAL ELECTIVES

	Three courses	8
	Total	96

COURSES OFFERED BY THE DEPARTMENT

Elective courses are indicated by the symbol •.

303-001A Structural Materials 2(2-2-2). Study of structural materials from the point of view of microscopic phenomena and the relationship to mechanical behaviour. Study of metals, concrete and polymeric materials.
Professor McKyes

303-002A Probabilistic Systems 3(3-1-5). An introduction to probability, statistics and decision theory with applications to Civil Engineering design. Descriptive statistics, common probabilistic models, principles of parameter estimation, elementary Bayesian analysis.
Professor Turkstra

303-003A Technical Reporting 1(1-0-2). Students will be encouraged to communicate ideas and factual data, either verbally, visually or in writing, relating to various situations encountered in engineering practice. Formal assignments will be limited to four short written submissions, including one group assignment, while the remainder of the course will emphasize active participation in class.
Professor Osler

303-004F Technical Papers 2. Two technical papers are to be presented. These are normally prepared during the summer months and are to be on a technical topic, related, if possible, to the students' summer employment. Detailed instructions are provided in the Spring.

303-005A,B Mechanics I 4(4-2-6). Systems of forces and couples, resultants, equilibrium. Frames and beams, reactions, shear forces, bending moments. Centroids, centre of gravity, distributed forces, moment of inertia. Friction, limiting equilibrium, screws, belts. Kinematics and kinetics of particles and systems, coordinates, mass-acceleration, work-energy, impulse-momentum. Orbital motion of particles.
Professors Japp, Selby & Sisodiya

303-081A Analytical Mechanics 3(3-1-5). *Prerequisite: 189-285A,B.* Kinematics of particles, dynamics of particles, Newton's laws of motion, forced and damped harmonic motion, resonance. Work, conservative forces, potential energy. General three-dimensional and constrained motion of particles. Relative motion and general moving frames of reference. Angular momentum of particles, central force fields and orbits. Dynamics of a system of particles, kinetic energy and angular momentum, collisions and impulse, bodies of variable mass. General motion of rigid bodies, moments and products of inertia, principal axes, angular momentum and kinetic energy of rigid bodies, gyroscopic precession. Euler's equations.
Professor Cox

303-086A Dynamics I 3(3-0-6). *Co-requisite: 189-287A.* Basic principles of Newtonian dynamics and its limitations, non-inertial reference frames. Generalized coordinates, Lagrange's equations and Hamilton's principle, central force motion. Cartesian tensors, coordinate transformations, moment of inertia tensors, principal axes, Lagrangian rigid body dynamics. Euler's equations of motion, gyroscopic precession.
Professor Harris

303-089A Building Materials 2(2-2-2). Microscopic and macroscopic considerations of metals, Portland cement, concrete and polymers at an introductory level.
Professor McKyes

303-090A Mechanics I 4(4-1-7). Introduction to Mechanics. Fundamental quantities. Conservation of mass. Kinematics, momentum and force; conservation of momentum; Newton's Laws; concepts of force and impulse; angular momentum and its conservation; central force motion; various classes of forces (electrostatic, friction, gravity, etc.) and pseudo-forces; relative motion. Energy: kinetic, potential and other mechanical forms; work. Static equilibrium; statics, electrostatics, hydrostatics and elastostatics. Centre of mass and moment of inertia. Rigid-body dynamics. Connection of Mechanics with other branches of Engineering.
Professors Lee & Zwarts

303-106B Mechanics II 3(3-2-4). *Prerequisite: 303-005A,B; 189-285A,B**.* Particle kinematics, moving coordinate systems, rigid body kinematics, moments of inertia. Rigid body kinetics, mass-acceleration, work-energy, impulse momentum. Euler's equations. Lagrange's equations, Hamilton's principle, vibrations of single degree of freedom systems. Professor Japp

303-107A,B Solid Mechanics 4(3-2-7)†. *Prerequisite: 303-005A,B*, 303-080A**.* Stress-strain relationships; elastic and inelastic behaviour; performance criteria. Elementary and compound stress states, Mohr's circle. Shear strains, torsion. Bending and shear stresses in flexural members. Deflections of beams. Statically indeterminate systems under flexural and axial loads. Columns. Dynamic loading.
†Two-hour laboratory periods and problem periods, alternate weeks.
Professors Redwood, Savage & Staff

303-108B Deterministic Systems 3(3-1-5). *Prerequisite: 189-285A,B**.* Introduction to the systems approach and optimisation techniques; applications of linear programming; critical path scheduling; marginal and sensitivity analysis; evaluation of projects and choosing among alternatives; integration of technological and social aspects in engineering projects.
Professor Panagiotakopoulos

303-109B Surveying 3(2-3-4). *Prerequisite: 308-080A**.* The construction and use of modern survey instruments: transit, level, etc.; linear and angular measurements and errors; types and magnitudes; probability; significant figures; units of measurements; simple circular curve; theory and use of the Polar Planimeter; engineering and architectural applications of surveying measurements. A field school must be attended after completion of the lecture course. Professor Selby

303-110A Sanitary Engineering 2(2-2-2). *Prerequisite: 308-080A**.* Basic engineering, biological and chemical principles of water supply and waste water disposal with selected problems. Professor Pakalnins

•303-133B Urban Planning 2(2-2-2). *Prerequisite: 308-080A*.* City in history; master plans of land use and communications; traffic and transportation systems; planning and design of residential subdivisions. Professor Pakalnins

303-182B Vibrations and Waves 3(3-0-6). *Prerequisite: 303-081A; Co-requisite: 189-286B.* Generalized coordinates, Lagrange's equations for particles and general systems, Hamilton's principle, generalized forces and momenta. Hamilton's equations. Vibrations of simple and multiple degree of freedom systems, coupled oscillations, normal coordinates, vibrations of a system of many particles. Waves on strings, travelling and standing waves, superposition. Energy and momentum transport. Boundary conditions, normal modes, Fourier analysis. External driving forces. Longitudinal waves, propagation across boundaries, reflection and refraction at a plane interface, impedance concepts, selective wave transmission. Wave pulse in dispersive media, group velocity. Transmission lines. Waves on circular and rectangular membranes, interference phenomena. Professor Savage

303-183B Strength of Materials 4(3-3-6). *Prerequisites: 303-005A,B*.* Structural behaviour, trusses; statically determinate beams, frames, and arches; moments of inertia, stress, strain, properties of materials; bending and shearing stresses; torsion; fixed and continuous beams; reinforced concrete beams; columns; combined stresses; Mohr's circle. Professor Mirza & Staff

303-187B Dynamics II 3(3-0-6). *Prerequisite: 303-086A; Co-requisite: 189-288B.* Introduction to the theory of elasticity, stress and strain tensors, equations of motion and compatibility, free and forced vibrations of single and multiple degree of freedom linear systems; non-linear vibrations and stability, phase plane and singular points, subharmonic response, limit cycle, derivations of various wave equations by Hamilton's principle, reflection and transmission, frequency and amplitude dispersion, formation of discontinuities, elastic surface waves.
Professor Cox

303-191A,B Mechanics II 3(3-1-5). *Prerequisite: 303-090A.* Classification of mechanics. Co-ordinate systems and relative motion. Degrees of freedom, generalized coordinates and constraints. Newtonian, Lagrangian and Hamiltonian formulations of mechanics. Solution of equations of motion for simple systems. Rigid-body dynamics; Euler's equations. Energy methods; stability and the phase plane. Transition from discrete to continuous, deformable systems. Wave propagation.
Professor Paidoussis

303-193B Mechanics II Honours 3(3-1-5). *Prerequisite: 303-090A* Same topics as covered in Mechanics II, but in a manner and with the stress appropriate for honours students.
Professor Knystautas

303-211B Fluid Mechanics 4(3-3-6). *Prerequisites: 189-286B, 303-106B**.* The fundamental principles of fluid dynamics; fluid kinematics and equations of motion; dynamic similitude and basic concepts of creeping motions and flow in porous media, boundary layers, turbulence and turbulent shear stresses. Application to pipe and open channel systems, hydraulic machines, and flow measurements.
Professor Chu

303-212A Soil Mechanics 4(3-3-6). *Prerequisite: 303-107A,B*; Co-requisite: 186-221A.* Soil properties and characteristics, subsurface exploration. Bearing capacity, consolidation, strength deformation characteristics of soils, foundation types, soil behaviour, classification, yield and failure, general considerations of stability.
Professor Yong

303-213A Structural Analysis 3(3-1-5). *Prerequisite: 303-107A,B.* Deflection analysis, integration methods, virtual work and strain, energy methods; statically indeterminate systems, continuous beams and frames; slope deflection and moment distribution methods; influence lines.
Professor Mirza

303-214A Structural Design I 3(3-1-5). *Prerequisite: 303-107A,B*.* Design in steel and timber. Properties of structural steels, classification and behaviour of steel structures. Allowable stress and plastic design. Members in axial tension and compression; flexure, with and without lateral support; reinforced beams, unstiffened plate girders. Introduction to beam-columns. Connections. Truss design. Properties of timber, timber beams, columns and connections.
Professor Turkstra

303-215B Structural Design II 3(3-1-5). *Prerequisite: 303-107A,B*.* A study of the physical properties and characteristics of concrete; the design process; the mechanics of reinforced concrete in bending; shear and diagonal tension; bond and anchorage; structural systems; continuous beams and slabs; columns under axial load.
Professor deStein

303-216B Transportation Economics 2(2-1-3). *Prerequisites: 303-002A*, 303-108B*.* Transportation economics. Treatment of highway and other transportation problems, drawing from statistical and probabilistic analysis as well as from economics.
Mr. deGouville

•303-230B Municipal Systems 3(3-2-4)., *Prerequisite: 303-110A.* Design, construction and economics of water supply and waste water disposal systems, including process and control engineering, and industrial waste disposal.
Professor Pakalnins

•303-231A **Stream Pollution and Control** 3(3-0-6). *Prerequisite: 303-110A*** Types of pollution, stream surveys, analysis, and standards. Dr. Hsu

•303-232B **Hydrology** 3(3-2-4). *Prerequisites: 303-002A, 303-108B***. Physical background to hydrology; climate variations; water balance, seepage and groundwater, evapo-transpiration, run-off; methods of collecting data and statistical treatment. Elements of flood routing; reservoir design. Professor Cavadias

•303-235A **Geometronics** 2(2-3-1). *Prerequisite: 303-109B*. Surveys for engineering projects; altimetry — trigonometric and barometric; underground surveys; hydrographic surveying — bathymetry; discharge of streams, electronic radio location; electronic distance measuring — tellurometer — geodimeter — use of the laser — airborne profile recording; elements of geodetic surveying; simple cartography.

•303-236B **Traffic Flow Systems** 2(2-2-2). *Prerequisites: 303-002A, 303-108B**. Distribution of traffic on a highway system. Application of computers to traffic control. Dynamic behaviour with non-linear spacing — speed relationships. Queueing and moving queue models in single- and multi-lane flows. Statistical analysis and operational analysis. Professor Cook

•303-239B **Photogrammetry and Interpretation** 3(3-3-3). *Prerequisite: 303-109B*. Construction of planimetric and topographic maps, determination of space position of objects from photographs; preparation of composite pictures of the ground; aerial cameras and equipment. Vertical aerial photographs are used to evaluate, analyze, classify and interpret images of objects seen on the photographs; laboratory use of stereoscopes and a Multiplex projector, and field visits, are included. Professor Arcand and Mr. Lee

303-284A **Soil Mechanics and Foundations** 2(2-3-1). *Prerequisites: 303-183B* or 303-107A,B**. Nature of soils, identification and classification. Physical properties of soils, permeability, compressibility, shear strength, principle of effective stresses, stress strain behaviour. Seepage, frost action. Field exploration of soil conditions. Foundations, shallow and deep. Earth pressures and retaining structures, stability of earth masses. Professor Japp

303-285A **Structural Steel Design** 2(2-2-2). *Prerequisite: 303-183B; Co-requisite: 303-089A*. A study of the characteristics of structural steel frames in building construction. Included is the detailed design of axially loaded members, trusses, beams and girders, and the overall framing of buildings. Also a consideration of structural loads, code requirements and design procedures. Professor Selby

303-288B **Reinforced Concrete Design** 2(2-2-2). *Prerequisite: 303-183B; Co-requisite: 303-089A*. A study of elementary reinforced concrete building systems including a consideration of their characteristics. Also the working stress design of simple and continuous span beams, and the design of columns. An introduction to ultimate strength design is also given. In addition the principles of structural timber design are studied. Professor Selby

303-317B **Foundations** 3(3-1-5). *Prerequisite: 303-212A**. Site investigation, engineering properties of soils for design. Plastic equilibrium, bearing capacity theory. Design of footings and rafts, differential settlement, coefficient of subgrade reaction. Earth pressures, design of retaining walls and bulkheads. Piles, soil-structure interaction, estimates of the bearing capacity of single piles, group action. Professor Osler

303-318B **Project** 3(0-4-5). *Prerequisite: Completion of an approved set of required and technical elective courses.* The project consists of a study or design topic in any of the branches of Civil Engineering. The project may be analytical or experimental, and may combine various branches in the discipline. The topic can be chosen in consultation with a staff member, whose

approval is necessary. Guidance will be provided by Department staff and by practising engineers. The project is normally carried out in a student's last semester.
Professor Turkstra and Staff

•303-338A Hydraulics 2(2-2-2). *Prerequisite: 303-211B.* Design of channels for non-uniform flow; computation of backwater curves, effect of ice and obstructions. Computations of unsteady flow in open channels; abrupt waves, floodwaves, tidal propagation. Navigation locks, manifold locks, manifold design. Water intakes.
Professor Savage

•303-350A Soil Behaviour 3(3-0-6). *Prerequisite: 303-212A.* Soil-water interaction in relation to soil properties, environmental considerations, volume changes, infiltration and diffusion. Soil freezing, soil strength parameters, time-deformation characteristics, stability and yield.
Professor Yong

•303-351A Highway and Airport Design 2(2-2-2). *Prerequisite: 303-212A*.* Design and construction of subgrades; fill selection, compaction, compaction control, soil stabilization, frost action. Stability of cuts and embankments. Design of rigid and flexible pavements and bases, stresses in layered systems, evaluation of design parameters, current methods of design, evaluation and strengthening of existing pavements.
Professor Osler

•303-360A Structural Theory I 3(3-2-4). *Prerequisite: 303-213A.* Advanced topics in structural analysis, Plastic Design and Limit Design methods, matrix methods and computer applications, structural dynamics, energy methods and numerical analysis, arches, cabled structures, fundamentals of plate and shell action.
Professor Sisodiya

•303-361B Structural Theory II 3(3-2-4). *Prerequisite: 303-213A.* Studies in advanced structural mechanics, stress and strain tensors and their transformations, basic equations of elasticity, unsymmetrical bending of beams, shear centres, torsion of non-circular sections, curved beams, thick cylinders, stress concentrations.
Professor Harris

•303-362A Design in Metals 3(3-3-3). *Prerequisites: 303-213A, 303-214A.* A study of structural systems; recent developments and trends in structural steel such as cantilever construction, castellated beams, composite construction, continuity, etc.; economic factors and cost studies; compression members by elastic and inelastic theory; miscellaneous details with high strength bolts and welds.
Professor deStein

•303-363A Design in Concrete 3(3-3-3). *Prerequisites: 303-213A, 303-215B.* Ultimate strength design of reinforced concrete beams, slabs, columns, retaining walls and footings. Floor systems and building frames. Yield line theory of slabs. Composite construction, design of prestressed concrete beams.
Professor Harris

•303-364B Experimental Stress Analysis 2(2-3-1). *Prerequisite: 303-213A.* Two dimensional stress and strain equations, Mohr's circle of strain, strain rosettes and graphical solutions; extensometers; electric strain gauges, circuitry for static and dynamic measurement, transducers. Two dimensional photoelasticity, photostress; brittle coatings, dimensional analysis and structural models.
Professor Harris

•303-370A Research Project 3(0-1-8). *Prerequisite: 60 credits in the Civil Engineering and Applied Mechanics program.* This course is open only to those students with a high cumulative grade point average. A research project must be carried out and a technical paper prepared under the supervision of a member of staff. The nature of the project must be established with the consent of the Staff Supervisor, and must be approved by the Department before registration. This course is to be taken in conjunction with the required Course 303-318B, and the project therefore can be carried out through two semesters.

303-392A Structures 2(2-2-2). *Prerequisite: 303-285A; Co-requisite: 303-288B.* A study of structural systems in concrete, steel, timber; a philosophy of structure; choice of structure; economic factors in design; recent developments and trends in structure; lateral stability by frame action, bracing, shear walls; mechanics of certain structural forms. **Professor deStein**

PROGRAMS IN CIVIL ENGINEERING

Considerable freedom exists for students to influence the nature of the program of study which they follow in the Department of Civil Engineering and Applied Mechanics. The Department offers a variety of advanced elective courses in three main groupings: Geotechnical Engineering, Structural Engineering, and a broad area which may be called Environmental Systems. The last of these is wide in scope, and embraces studies in urban systems engineering, transportation, hydrology, environmental and municipal engineering, fluid mechanics, photogrammetry and air photograph interpretation and pollution studies.

In order to complete a program in the minimum time, the need to satisfy prerequisites leaves little choice of courses in the first semester, and also restricts the choice in the second semester. Therefore, in Semester 1, students planning a six semester program are advised to register in the following courses:

186-221A	General Geology
189-285A	Introduction to Ordinary Differential Equations
303-003A	Technical Reporting
303-005A	Mechanics I
305-090A	Engineering Graphics II
308-080A	Computers in Engineering

In Semester 2 the following courses are advised:

189-286B	Introduction to Boundary Value Problems
303-106B	Mechanics II
303-107B	Solid Mechanics
303-108B	Deterministic Systems
303-109B	Surveying

Possible exceptions might include students electing to take a lighter course load, or those who have planned their complete program in detail.

Courses taken in Semester 3 or later are very much dependent upon a student's interests and ability. Information and advice concerning different possibilities are made available in the Department prior to registration. All programs require the approval of a Staff Adviser. Programs for students transferring into the Department with advanced standing will be dependent upon the academic credit previously achieved, and such a program will be established only after consultation with a Staff Adviser.

The General Elective requirements of eight credits may be satisfied by taking approved courses, at the appropriate level, given anywhere within the University; these courses may be of a technical or non-technical nature.

Technical Elective courses must amount to 17 out of a total of 96 credits, and most of these electives will be selected from those offered in the Department. Providing good grades have been maintained, and with the instructor's approval, the courses elected may include certain ones normally provided for graduate students. Permission may be granted for a student to take a coherent group of elective courses from outside of the Department, subject to the overall requirement that the emphasis of these elective courses is compatible with the professional orientation of a civil engineer. Such a program is the Minor in Management, which is particularly relevant to students interested in careers in construction or business management. Four of the required technical elective credits may be considered as satisfied by completion of the courses listed in Section 5.1; the total B.Eng. program in Civil Engineering with this Minor thus comprises a minimum of 102 credits. This fact, and timetabling conflicts, will normally mean that additional time will be needed to complete the degree with this Minor.

In addition to courses described in Section 5.1, the following courses given by other Departments are particularly relevant for civil engineering students:

301-206B	Philosophy of Structures
301-433A	Urban Planning I
301-433B	Urban Planning II
307-251A	Geophysical Exploration
307-304B	Behaviour of Rock Structures
308-250B	Numerical Analysis

In some cases enrolment may be limited, and in others the instructor's permission should be obtained before registration.

5.5 DEPARTMENT OF ELECTRICAL ENGINEERING

Chairman

G.W. Farnell, Ph.D., McGill

Professors

T.H. Barton, D.Eng., Sheffield
R.P. Comsa, M.Sc., Zurich; M.Eng., McGill
G.L. d'Ombrain, Ph.D., London
G.W. Farnell, Ph.D., McGill
T.J.F. Pavlasek, Ph.D., McGill
P. Silvester, Ph.D., McGill
G.D. Zames, Sc.D., M.I.T.

Associate Professors

E.L. Adler, Ph.D., McGill
P.R. Bélanger, Ph.D., M.I.T.
M.L. Blostein, Ph.D., Illinois (on leave 73/74)
C.H. Champness, Ph.D., McGill
M.J. Ferguson, Ph.D., Stanford
M. Fukada, Ph.D., California (on leave 73/74)
A.A. Gundjian, Ph.D., Pennsylvania
M.D. Levine, Ph.D., London
N. Rumin, Ph.D., McGill
E. Sigurdson, Ph.D., London
F. Spitzer, Ph.D., London
G.L. Yip, Ph.D., Toronto

Assistant Professors

B.A. Howarth, Ph.D., McGill
H.C. Lee, Ph.D., McGill
A.S. Malowany, Ph.D., McGill
B.T. Ooi, Ph.D., McGill

Lecturers

C.W. Bradley, M.Eng., McGill
K.L. Fraser, B.Eng., McGill

Special Lecturers

R. Bartnikas, Ph.D., McGill
B. Gevay, M.Eng., McGill
M. Marin, Ph.D., California; D.Sc., Madrid

ENGINEERING

Associated Faculty Member

C.A. Laszlo, Ph.D., McGill

Demonstrators

To be appointed.

Electrical engineering was easy to define when it was centred on the generation and distribution of electric power. However, the realization that electrical waves can be used to communicate and process information dramatically altered the shape of electrical engineering and created the need for fundamental studies in electromagnetic radiation and propagation, and in devices to amplify and modify electronic signals.

The invention of the transistor in 1948 represented a key event in these developments and spawned an epoch of exceptionally rapid change. It produced a continuing need to understand and study solid state physics and devices and permitted electronic processing of information with degrees of complexity and speed undreamed of in the past. The electrical engineer was forced to become familiar not only with the analysis and design of electronic devices and circuits, but also with the systems that result from interconnecting massive numbers of devices. The organizing of these large systems required new models, produced new questions, and even new languages of description. Perhaps the best current example is the digital computer but similar examples occur in the study of both communication and control systems. Thus, modern electrical engineering studies must cover a vast area from power engineering, even more important now with the current energy and pollution crises, to solid state physics, circuits, electronic devices, electromagnetic theory, systems, computers and computation.

At McGill, there are two different curricula, a regular course leading to a B.Eng. and an honours course leading to a B.Eng.(Honours). Both curricula can be completed in six semesters (three years). The required courses in the regular curriculum give a strong background in physics, mathematics, circuits, electronics and electromagnetic theory. These provide the fundamental modelling tools for further studies. Because of the diversity of the field, it is not possible to become expert in everything but it is required that the student obtain an exposure to a diverse subset of the important areas. To promote this breadth, the student is required to choose from a restricted set of courses. Finally, there is a large group of technical electives which allow considerable freedom on the part of the student to specialize in specific areas, or to obtain a broad perspective on the field. This latter choice is also compatible with career goals of students who do not necessarily intend to become practicing engineers but see this educational experience as producing excellent mental discipline and problem solving capability.

In addition to technical elective requirements, the student must also satisfy a general elective requirement. Although it is possible to take technical courses to satisfy this requirement, students are urged to use this freedom to study in some depth a field entirely outside electrical engineering. The faculty is defining course packages that study a certain field in sufficient depth to be called a minor. With judicious use of general electives, the occasional additional course and, under exceptional circumstances, a slight reduction of the technical elective requirement by the department chairman, a student in the regular course should be able to take a faculty minor.

The Honours curriculum is designed to produce a stronger background in the mathematics and physical basis of electrical engineering with the goal of an in depth study of certain areas of the field. As a result, the required courses stress a more fundamental and analytical approach to the subject matter. The technical electives must be chosen to provide coherent study of certain well defined areas and should serve as a basis for future study either in graduate school or industry. Students in this curriculum normally benefit from smaller classes and more personal attention on the part of the staff.

To facilitate study of both of these curricula, the department has, along with the library and computational resources of the university, various laboratory facilities including minicomputers, anechoic chambers for microwave and audio measurements, equipment for solid state integrated circuit fabrication, a laboratory for measurements of electric machine dynamics, and instruments for study of digital and analogue electronic circuits. The result is an education that emphasizes the truly broad horizons of electrical engineering.

Curriculum for the B.Eng. Degree in Electrical Engineering (Regular)

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
189-285A,B	Introductory Ordinary Differential Equations	4	
189-286B	Introductory Boundary Value Problems	4	
189-381A	Functions of Complex Variable	3	
198-321A	Modern Physics	3	
303-081A	Analytical Mechanics	3	
303-182B	Vibrations and Waves	3	20
ELECTRICAL ENGINEERING SUBJECTS			
304-001A,B	Introductory Circuit Theory	3	
304-021A,B	Introduction to Computers	3	
304-131A,B	Introductory Electronics	3	
304-191A,B	Electrical Laboratory I	3	
304-202A,B	Network Analysis	3	
304-251A	Electromagnetic Fields	3	
304-292A,B	Electrical Laboratory II	3	
304-333A,B	Electronic Circuits	3	
304-352B	Electromagnetic Waves	3	
304-470A	Technical Paper	2	
304-493A	Electrical Laboratory III	3	
304-494B	Electrical Laboratory IV	3	35
Required Courses (Breadth)			
Choose 12 credits (4 courses) from the list below			
304-222A,B	Digital System Design	3	
304-261A	Electromechanical Energy Conversion I	3	
304-303A,B	Signals and Systems	3	
304-305B	Random Signals and Noise	3	
304-332B	Properties of Solids	3	
308-250A,B	Numerical Analysis	3	12
Elective Courses			
TECHNICAL ELECTIVES			
Eighteen credits (6 courses) chosen from 300, 400, 500, or 600 level courses given by the department. Courses contained in the breadth list but not used for that requirement may also be chosen.			18
GENERAL ELECTIVES			
Nine credits (3 courses).			9
	Total		94

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A typical organization of the six semester study leading to a B.Eng. in Electrical Engineering is given below:

REGULAR COURSE

Semester 1 (Fall)

303-081A	Analytical Mechanics	3
189-285A	Ordinary Diff. Eq.	4
304-001A	Circuits	3
304-021A	Intro. to Computers	3
General Elective or 189-284 if deficient		3
		16

Semester 2 (Spring)

303-182B	Vibration and Waves	3
304-131B	Electronics	3
304-191B	Elect. Lab I	3
189-286A	Boundary	4
General Elective		3
		16

Semester 3 (Fall)

198-321A	Modern Physics	3
304-251A	Electromagnetic Theory	3
304-202A	Networks	3
189-381A	Complex Variables	3
Breadth required course		3
		15

Semester 4 (Spring)

304-333B	Electronics	3
304-292B	Elect. Lab II	3
304-352B	Electromagnetic Waves	3
Breadth required courses		6
		15

Semester 5 (Fall)

304-470A	Technical Paper	2
304-493A	Elect. Lab III	3
Technical Electives		9
Breadth required courses		3
		17

Semester 6 (Spring)

304-494B	Elect. Lab IV	3
Technical Electives		9
General Electives		3
		15

Note: 304-222, Digital Systems Design, is a prerequisite to several computer oriented courses. It is therefore recommended that students electing to take this course do so in Semester 3 or Semester 4.

Curriculum for the B.Eng. Degree in Electrical Engineering (Honours)

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
189-287A	Linear Analysis and Differential Equations I	4	
189-288B	Linear Analysis and Differential Equations II	4	
189-384B	Probability	3	
189-385A	Complex Variables	3	
198-271B	Quantum Physics	3	
303-086B	Dynamics I	3	
303-187B	Dynamics II	3	23
ELECTRICAL ENGINEERING SUBJECTS			
304-001A,B	Introductory Circuit Theory	3	
304-021A,B	Introduction to Computers	3	
304-136B	Introductory Electronics	3	
304-191A,B	Electrical Laboratory I	3	
304-207A	Network Analysis	3	
304-256A	Electromagnetic Fields	3	
304-276A	Thermal Physics	3	
304-292A,B	Electrical Laboratory II	3	
304-308B	Signals and Systems	3	
304-337B	Solid State Electronics I	3	
304-338B	Electronic Circuits	3	
304-357B	Electromagnetic Waves	3	
304-470A	Technical Paper	2	
304-493A	Electrical Laboratory III	3	
304-499B	Electrical Laboratory IV	3	44

Elective Courses

TECHNICAL ELECTIVES

Twenty-one credits (7 courses) must be selected from graduate and undergraduate courses to provide an in depth study in one or two areas. Course selections are subject to the department's approval. 21

GENERAL ELECTIVES

Nine credits (3 courses) selected in accordance with department regulations. (See Section Below) 9

Total 97

ENGINEERING

A typical organization for six terms of study leading to a B.Eng. (Honours) is given below.

HONOURS COURSE

Semester 1 (Fall)

303-086A	Dynamics I	3
189-287A	Analysis and Diff. Eq. I	4
304-001A	Circuits	3
304-021A	Intro. to computers	3
(General Elective or 189-284A if deficient)		3
		16

Semester 2 (Spring)

303-187B	Dynamics II	3
198-271B	Quatum Physics	3
189-288B	Analysis and Diff. Eq. II	4
304-136B	Electronics	3
304-191B	Elect. Lab I	3
		16

Semester 3 (Fall)

184-385A	Complex Variables	3
304-207A	Networks	3
304-256A	Electromagnetic Fields	3
304-276A	Thermal Physics	3
304-337A	Solid State Electronics I	3
(General or Technical Elective)		3
		18

Semester 4 (Spring)

189-384B	Probability	3
304-308B	Systems	3
304-388B	Electronics	3
304-357B	Electromagnetic Waves	3
304-292B	Elect. Lab II	3
		15

Semester 5 (Fall)

304-470A	Technical Paper	2
304-493A	Elect. Lab III	3
(Technical Electives)		9
(General Elective)		3
		17

Semester 6 (Spring)

304-499B	Elect. Lab IV	3
(Technical Electives)		12
		15

Note: 304-222, Digital System Design, is a prerequisite to several computer-oriented courses. It is recommended that the student take this as the elective in Semester 3 or Semester 4.

PROGRAMS IN ELECTRICAL ENGINEERING

Our course of study allows considerable flexibility. By an appropriate choice of courses the student can obtain concentrated study in computer engineering, power systems, electromagnetics, solid state electronics and integrated circuits, communications or control systems. Alternatively a student may mix courses from these areas to obtain a broad technological base in Electrical Engineering. Some suitable combinations of electives are listed below.

COMPUTER ENGINEERING

Computer engineering at McGill emphasizes the structure, design, and role of computers in modern systems. Modern communication, control, and power systems all have mini-computers deeply imbedded within them. In order to obtain the best system, the computer engineer needs a thorough understanding of both hardware and software. A combination of required courses and technical electives satisfy this aim.

Required Course		Credits
304-021A	Introduction to Computers	3

Required Breadth Course

304-222A,B	Digital System Design	3
308-250A,B	Numerical Analysis	3

Technical Electives (Electrical Engineering)

304-324A	Machine Language and Computer Structures	3
304-423B	Real Time Systems	3
304-425B	Computer Architecture	3
304-435B	Pulse and Digital Networks	3

Other Electives

308-300A,B	Programming Languages	3
308-310B	Computer Software Organization and Design	3
308-315A	Information Structures	3
308-320B	Files and Data Bases	3
189-417A	Mathematical Programming	3
280-373A	Operations Research I	3
280-374B	Operations Research II	3

In addition to the above there are projects involving computation, digital system design, computer interfacing and applications in the required electrical laboratories.

COMMUNICATION SYSTEMS

Required Breadth Courses

304-303A,B	Signals and Systems	3
304-305B	Random Signals and Noise	3

ENGINEERING

Technical Electives

304-411A	Communication Systems	3
304-412B	Statistical Communication Theory	3
304-470B	Communications Technology	3

In addition to the above, courses describing some of the components used in communication systems are available. Thus a strong background in antennas, microwaves, solid state electronics and computer structure is recommended. Finally the system ideas embodied in control system theory can be quite useful.

CONTROL SYSTEMS

Required Breadth Courses

304-303A,B	Signals and Systems	3
304-305B	Random Signals and Noise	3

Technical Electives

304-404A	Control Systems	3
304-405B	Introduction to Modern Control	3

To obtain sufficient breadth to design complex control systems, additional knowledge of computer structure communications, electronics and mathematical programming is desirable.

ELECTROMAGNETICS AND WAVES

Technical Electives

304-454A	Antennas and Propagation	3
304-453B	Microwave Theory and Techniques	3
304-471B	Acoustics	3

These courses along with the required electromagnetics courses serve as a basis for further work in electromagnetic phenomena and as an introduction to microwave devices for all electrical engineers.

POWER SYSTEMS

Required Breadth Courses

304-251A,B	Electromechanical Energy Conversion I	3

Technical Electives

304-362A	Electromechanical Energy	3
304-363A	High Voltage Engineering	3
304-364B	Power System Analysis	3

It should also be noted that power engineers do not live in a vacuum and that knowledge in systems, circuits, control, electromagnetics, and computers is important.

SOLID STATE DEVICES AND ELECTRONICS

Required Breadth Courses

304-222A,B	Digital System Design	3
304-332A	Properties of Solids	3
304-303A,B	Systems and Signals	3

Technical Electives

304-441A	Semiconductor Devices	3
304-442B	Laser Electronics	3
304-434A	Linear Active Networks	3
304-435B	Pulse and Digital Networks	3

In addition to the above, the required courses give a firm basis in both solid state physics and linear and digital electronics. The required laboratories include extensive experimentation using modern integrated and discrete electronics components, a small scale integrated circuit fabrication laboratory and a laser communications and holography facility.

REGULATIONS CONCERNING GENERAL ELECTIVES

Nine credits of electrical engineering electives or any of the courses listed below. *At least three credits must* be selected at either the *three or four hundred* level in Arts, Science or Management, or from the *two, three, or four hundred* level in Engineering.

Humanities

All two, three and four hundred level courses from the departments of Anthropology, Art History, Classics, Economics, English, French Language and Literature, History, Linguistics, Philosophy, Political Science, Religious Studies and Sociology, with the exception of 154-307, 154-317, 154-357, 107-210 and 107-211.

Management

280-211, 221, 222 and all three and four hundred level courses except 280-331.

Mathematics

189-252, 271, 272, 318, 328, 333 and all courses numbered *higher* than 189-355.

Physics

198-214, 309, 314, 351, 408, 451, 452 and 455.

Chemistry

All two, three and four hundred level courses *except* 180-200, 204, 214, 234 and 447.

Earth Sciences

All two, three and four hundred level courses from the departments of Meteorology, Geological Sciences and Geography, *except* 183-202, 186-230 and 186-331.

ENGINEERING

Biological Sciences

All two, three and four hundred level courses from the departments of Anatomy, Biochemistry, Biology, Microbiology and Immunology, Physiology and Psychology with the *exception* of 189-231, 189-309, 189-373, 204-204, 204-305, 204-307, 552-201, 552-202 and 528-201.

Computer Science

308-250, 300, 310, 315 and 320.

Architecture

301-001, 010, 102, 203, 204, 205, 206, 230, 232 and 443.

Engineering Economy, Law & Management

300-010, 300-011, 300-020 and 300-112.

Civil Engineering

303-107 and all two, three and four hundred level courses.

Mechanical Engineering

304-040, 305-141 or 142 and all two, three and four hundred level courses *except* 305-215 and 317.

Chemical, Mining & Metallurgical Engineering

302-122, 302-131, 306-120, 306-140, 306-141, 306-160, 306-161, 306-162 and all two, three and four hundred level courses *except* 302-361, 302-371, 307-202, 307-302, and 307-352.

COURSES OFFERED BY THE DEPARTMENT

304-001A,B Introductory Circuit Theory 3(3-1-5). *Co-requisite: 189-285A,B or 189-287A.* KVL and KCL laws, branch constitutive relations, response of simple circuits to suddenly applied excitations, impulse response, steady-state response to sinusoidal excitations, power and energy, elementary loop and nodal analysis, network theorems.

304-021A Introduction to Computers 3(3-1-5). Introduction to digital systems, information and arithmetic; elementary combinational and sequential logic; stored program control and simple machine language programs; introduction assemblers and compilers. The student will also experience both simulations and the use of a small (PDP-8) computer. FORTRAN will be used for simulation and computational exercises.

304-131A,B Introductory Electronics 3(3-0-6). *Prerequisite: 304-001A,B*.* Ideal amplifier and diode circuits, semiconductor junctions, field-effect transistors, amplifiers using field-effect transistors, biassing, bipolar transistors, bipolar transistor circuits.

304-136B Introductory Electronics 3(3-0-6). *Prerequisite: 304-001A,B*.* Honours section of 304-131; similar in content to 304-131 but taught in greater depth.

304-181B **Electric Power** 3(3-0-6). *Prerequisite: 189-285A,B.* Electrical circuit theory; distribution of electric power, electrical power utilization, electrical machines, transformers, controlled rectifiers. Not open to electrical engineering students.

304-182B **Electronics** 3(3-0-6). *Prerequisite: 189-285A,B.* Electrical circuit theory, linear electronic devices, amplifiers and feedback, switching circuits, digital and logic circuits, instrumentation, measurement transducers, modulation and transmission of signals. Not open to electrical engineering students.

304-191A,B **Electrical Laboratory I** 3(1-5-4). *Co-requisite: 304-131A,B or 304-136B.* Operating principles and limitations of basic electrical and electronic laboratory measurements and techniques including meters, oscilloscopes, generators and bridges.

304-202A,B **Network Analysis** 3(3-1-5). *Prerequisite: 304-001A,B. Co-requisite: 189-381A.* Formulation of network equilibrium equations, transform solution techniques, network functions, two-port analysis, network theorems, pole-zero design techniques.

304-207A **Network Analysis** 3(3-0-6). *Prerequisite: 304-001A,B. Co-requisite: 189-381B or 189-385B.* Honours section of 304-202; similar in content to 304-202 but taught in greater depth.

304-222A,B **Digital System Design** 3(3-0-6). *Prerequisites: 304-021A; 304-131A,B or 304-136B.* Information representation and manipulation, coding, logic functions, Boolean algebra, graphical and algorithmic methods of synthesis and minimization of combinational circuits, finite state machines, synthesis of synchronous sequential networks, asynchronous sequential logic.

304-251A **Electromagnetic Fields** 3(3-0-6). *Prerequisites: 304-001A,B*, 304-021A,B, 189-286B, or 189-288B.* Electrostatics and electric potential; kinematics, electrodynamics and Maxwell's equations; magnetostatics and magnetic vector potential; energy and power; time-varying fields; applications to engineering problems.

304-256A **Electromagnetic Fields** 3(3-0-6). *Prerequisites: 304-001A,B, 189-288B or 189-286B.* Honours section of 304-251; similar in content to 304-251 but taught in greater depth.

304-261A,B **Electromechanical Energy Conversion I** 3(3-0-6). *Co-requisite: 304-202A,B or 304-207A.* Basic electro-mechanical energy conversion processes. Simple electromechanical transducers. Transformers. Machine models. Characteristics of commutator, induction and synchronous machines.

304-276A **Thermal Physics** 3(3-0-6). *Prerequisites: 198-271, 303-187B.* Definition of thermodynamics; equilibrium thermodynamics; potentials as Legendre transforms of internal energy; concept of thermodynamic energies; equilibrium and nonequilibrium properties of matter; heat and current flow; statistical mechanical foundation of thermodynamics; distribution functions, application to material properties.

304-283A **Electronics** 3(3-0-6). *Prerequisite: 304-181A.* Linear electronic devices, amplifiers and feedback, switching circuits, digital and logic circuits, instrumentation, measurement transducers, modulation and transmission of signals. Not open to electrical engineering students.

304-284A **Electric Power** 3(3-0-6). *Prerequisite: 304-182B.* Distribution of electric power, electric power utilization, electrical machines, transformers, controlled rectifiers. Not open to electrical engineering students.

304-292A,B **Electrical Laboratory II** 3(3-5-4). *Prerequisite: 304-191A,B. Co-requisite: 304-202A or 304-207A.* Advanced instrumentation and measurement techniques with applications to electronic circuit design.

304-303A,B **Signals and Systems** 3(3-0-6). *Co-requisite: 304-202A,B or 304-207A.* Flow graphs and instantaneous feedback theory, state-variable methods in linear differential systems, time-frequency correlations in systems defined by convolution, properties of transfer functions, single-loop stability analysis.

304-305B **Random Signals and Noise** 3(3-0-6). *Prerequisite: 304-303A,B or 303-308A.* Introduction to probability, engineering applications and heuristic basis, axioms and sets, conditional probability, independence; random variables, definitions, functions, moments, vector and scalar, characteristic functions; random processes, noise model, stationarity, ergodicity, correlation and power spectrum, spectrum measurements; response of linear systems to random inputs, cross spectral densities, narrow band noise; introduction to discrete time and space processes, Markov chains and elementary queues.

304-308A **Signals and Systems** 3(3-0-6). *Co-requisite: 304-207A or 304-202A,B.* Honours section of 304-303; similar in content to 304-303 but taught in greater depth.

304-324A **Computer Structure and Machine Language Programming** 3(3-0-6). *Prerequisite: 304-222A,B.* Machine arithmetic, microprogramming control, memories, addressing techniques, instruction sequencing and branching, loops, subroutines, macros, assemblers, linkages, asynchronous processes, interrupts, input-output processes.

304-332B **Properties of Solids** 3(3-0-6). *Prerequisite: 198-321A.* Statistical properties of materials. Electrons in metals and semiconductors, free electron theory of metals, energy bands. Conduction processes in semiconductors. Theory of the pn junction and bipolar transistor.

304-333A,B **Electronic Circuits** 3(3-0-6). *Prerequisites: 304-131A,B or 304-136B; 304-202A,B* or 304-207A*. Recommended: 304-303A,B or 304-308A.* A linear electronic system, frequency dependent transistor models, frequency response of small signal amplifiers, cascaded amplifiers with particular reference to integrated circuits, feedback, tuned and power amplifiers, applications of linear integrated circuits, switching devices, logical and counting circuits.

304-337B **Solid State Electronics I** 3(3-0-6). *Prerequisite: 304-276A.* Free electron theory of metals, electrons in one dimensional periodic potential, density of states, energy bands, conduction processes in semiconductors. Theory of the pn junction and bipolar transistor.

304-338A,B **Electronic Circuits** 3(3-0-6). *Prerequisites: 304-136B or 304-131A,B, 304-207A,B or 304-202A,B.* Honours section of 304-333; similar in content to 304-333 but taught in greater depth.

304-352B **Electromagnetic Waves** 3(3-0-6). *Prerequisites: 304-251A or 304-256A, 303-182B or 303-187B.* Steady-state and transient analysis of wave propagation in uniformly distributed systems; energy and power transfer; models, scattering parameters and the Smith chart; measurements on distributed systems; dispersion, periodically distributed systems and the w-B diagram.

304-357B **Electromagnetic Waves** 3(3-0-6). *Prerequisites: 304-256A, 303-182B or 303-187B.* Honours section of 304-352; similar in content to 304-352 but taught in greater depth.

304-362A **Electromechanical Energy Conversion II** 3(3-0-6). *Prerequisite: 304-261A* Practical machine limitations set by maximum flux and current densities and their consequences; the structure of machines including winding and air-gap patterns; magnetic saturation and its effects; steady-state performance of the induction motor in all its various forms; simple electromechanical transient situations.

304-363A **High Voltage Engineering** 3(3-0-6). *Prerequisite: 304-261A.* Gaseous discharges: uniform and non-uniform fields, breakdown in large gaps, corona modes, surface discharges, bundle conductors, electrostatic induction by E.H.V. lines; solid and liquid dielectrics; H.V. laboratory equipment.

304-364B **Power System Analysis** 3(3-0-6). *Prerequisite: 304-261A.* Steady-state and transient characteristics of three phase system components; steady-state load flow calculations in three phase networks, load distribution; faults; stability calculations in two machine systems including effects of faults and switching operations; techniques for improving stability limits.

304-404A **Control Systems** 3(3-0-6). *Prerequisite: 304-303A,B or 304-308B.* Feedback and sensitivity; performance criteria; design by root locus, Bode and Nichols diagrams; compensation and optimization of fixed structure controllers; state representation, controllability and observability; discrete systems, z-transforms; linear regulator problems.

304-405B **Introduction to Modern Control** 3(3-0-6). *Prerequisite: 304-303A,B or 304-308B; and 304-305B or 189-384A. Recommended: 304-404A.* Survey of modern control theory: historical background, control problem formulation, system modelling and identification, static optimization, optimal control with information uncertainty.

304-411A **Communication Systems** 3(3-0-6). *Prerequisites: 304-303A,B or 304-308B, 304-305B or 189-384B.* Power spectral analysis, amplitude modulation systems, frequency modulation systems, pulse modulation systems, pulse code modulation, stochastic processes and noise, noise in modulation systems.

304-412B **Statistical Communication Theory** 3(3-0-6). *Prerequisite: 304-411A.* Statistical decision theory, optimum detection of known and unknown signals in noise, matched filters, optimum estimation and filtering, phase lock loop, channel capacity.

304-423B **Real-Time Systems** 3(3-0-6). *Prerequisite: 304-324A.* Application of computers to control, communications and data acquisition in real-time systems. The course is concerned with aspects of hardware, software, the hardware-software interface and their integration into a complete system.

304-425B **Computer Organization and Architecture** 3(3-0-6). *Prerequisite: 304-324A.* Technology summary, parallel machines, lookahead and pipelined machines, memory hierarchies, virtual memories, paging, segmentation, dynamic relocation, input-output architecture, multiprocessor systems, performances analysis.

304-434B **Linear Active Networks** 3(3-0-6). *Prerequisite: 304-333A,B or 304-338B.* Multistage broad band amplifiers and broad banding techniques. Direct-coupled differential amplifiers. Offsets in quasi-symmetric circuits. Pass band amplifiers. Butterworth and Chebyshev responses. Stability and compensation of feedback amplifiers. Approximate methods for time and frequency response calculations.

304-435A **Pulse and Digital Networks** 3(3-0-6). *Prerequisite: 304-333A,B or 304-338B.* Operation of Bipolar Junction and Field Effect Transistors under large signal conditions. Digital logic and amplitude gating. Regenerative switching circuits; memory; comparators. Timing circuits.

304-439B **Solid State Electronics II** 3(3-0-6). *Prerequisite: 304-337B.* Physical operation and fabrication of semiconductor devices. Magnetic properties of matter; ferromagnetism, domains, antiferromagnetism, ferrimagnetism, applications of magnetism. Topics of current interest in solid state electronics. This course will be given if there is sufficient registration.

304-441A **Semiconductor Devices** 3(3-0-6). *Prerequisites: 304-333A,B or 304-338A,B; 304-332B or 304-337B.* Static and dynamic behaviour of pn junctions and bipolar transistors. Pnpn devices. Field effect transistors. Fabrication of semiconductor devices and integrated circuits. For 1973-74 the 304-332 prerequisite may be waived at the discretion of the lecturer.

304-442B **Laser Electronics** 3(3-0-6). *Prerequisite: 304-332B or 304-337B.* Principles of amplification by stimulated emission of radiation; characteristics of solid state and gaseous lasers; coherence, stability and noise; non linear effects for modulation and detection of laser beams, application to communication, measurement and other fields. For 1973-74, the 304-332 prerequisite may be waived at the discretion of the lecturer.

304-453B **Microwave Theory and Techniques** 3(3-0-6). *Prerequisite: 304-352B or 304-357B.* Waveguides; microwave circuit theory; passive devices: waveguide-type components, couplers, resonators, detectors, mixers and ferrite devices; periodic structures: filters and slow wave structures; active devices: klystrons, magnetrons, travelling wave and parametric devices, and solid-state oscillators; microwave measurements.

304-454A **Antennas and Propagation** 3(3-0-6). *Prerequisites: 304-352B or 304-357B.* Near and far field behaviour of radiators; antennas as a boundary value problem; practical antenna parameters; wire antennas, antenna arrays, aperture antennas, the diffraction problem; specialized antenna forms, point-to-point propagation, fading beyond horizon and long distance propagation, ionospheric, atmospheric and earth's surface considerations; tropospheric scatter.

304-458B **Electromagnetic Radiating Systems** *Prerequisite: 304-357B.* Poynting's theorem, vector, scalar and Hertz potentials. Linear and loop antennas. Wave polarization. Arrays; pattern multiplication and synthesis. Impedance and other practical antenna parameters. Radiation from apertures; Schelkunoff's equivalence principle, the Huygens-Kirchoff diffraction formula. Horn, reflector and slot antennas. Ground wave propagation and ionospheric propagation. This course will be given if there is sufficient registration.

304-470F **Technical Paper** 2(0-0-6). After completion of four semesters of work, each student should consult his staff adviser for guidance in the selection of a suitable topic for a technical paper based on the student's non-university course experience.

304-471B **Acoustics** 3(3-0-6). *Prerequisite: 304-352B or 304-357B.* Acoustic waves in gases and liquids, directivity patterns, resonators and filters, acoustic circuits; microphones and loudspeakers: dynamic, condenser, piezoelectric and magnetostrictive; underwater acoustics: refraction and reflection channels and sonar; environmental acoustics: criteria, noise control, room design, reverberation time and the Haas effect.

304-472B **Communications Technology** 3(3-0-6). *Prerequisite: 304-303A,B or 304-308B.* Theoretical and practical aspects of communications technology will be examined through the study of existing systems which are representative of the state of the art. Case-studies will be selected from areas such as satellite communications, radio astronomy, microwave systems, radar, television and sonar.

304-493A **Electrical Laboratory III** 3(0-5-4). *Prerequisites: 304-292A,B, 304-333A,B or 304-338B.* A design-oriented experimental program which is integrated with the particular elective program of the student.

304-494B **Electrical Laboratory IV** 3(0-5-4). *Prerequisite: 304-493A.* A continuation of 304-493A; the majority of the term is devoted to a particular project selected by the student on a topic of current interest.

304-499B **Electrical Laboratory IV** 3(0-5-4). *Prerequisite: 304-493A.* Honours section of 304-494; similar in content to 304-494 but involving more challenging assignments.

5.6 DEPARTMENT OF MECHANICAL ENGINEERING

Chairman

J.W. Stachiewicz

Professors

D.R. Axelrad
W. Bruce
B.G. Newman
J.W. Stachiewicz

Associate Professors

G.G. Bach
J.C. Cherna
P.V. Covo
G.I. Fekete
J.M. Forde
R. Knystautas
L. Kops
J.H.S. Lee
C.L. Murphy
M.P. Paidoussis
D. Pfeiffer
J.W. Provan
A.L. Thompson
J.H.T. Wu
P.J. Zsombor-Murray

Assistant Professors

A.M. Ahmed
C. Guirao
R. Hoffman
F.J. Zwarts

Honorary Lecturer

D. Atack

Research Associates

T.D. Bui
J.A.H. Graham

Research Assistant and Special Lecturer

V. Fangor

Laboratory Superintendents and Special Lecturers

O. Muehling
L. Vroomen

Associate Members

Dr. D. Atack, The Pulp and Paper Research Institute of Canada
Dr. G.V. Bull
Dr. H. Luckert, Space Research Corporation
Dean L.G. Jaeger, University of New Brunswick
Mr. R.G. Edwards, Canadair Ltd.

ENGINEERING

Mechanical Engineering is the art of directing the sources of power in nature for the use and convenience of man. To achieve this broad goal, a knowledge of such fundamental disciplines as mathematics, physics, mechanics and thermodynamics is required. In addition to these subjects, a knowledge of electronics, electrical circuit theory, and material properties is desirable.

In order to use the knowledge obtained from these subjects, emphasis is placed on design of useful devices and processes. This is the art of engineering which is emphasized in the design, laboratory and production courses.

The Department of Mechanical Engineering recognizes diverse interests by offering two programs: the Regular and the Honours Program. In both programs the mandatory courses are concentrated in the early semesters while the number of elective courses increases in the later semesters. Technical electives are selected by the student, in consultation with departmental advisers, from a wide variety of areas, to suit the student's own inclinations and career goals. By a wise choice of electives, students may graduate with a specialization in, for example, Thermodynamics and Energy Conversion, Machine Design, Industrial Engineering, Aeronautics and Aerospace Engineering, Systems Design, or Bioengineering.

The Honours Program is primarily designed for the creative, analytically-minded student. The emphasis is on providing a sound foundation in mathematics, physics and the basic engineering sciences. Nevertheless, graduates may pursue a career not only in research, but, by means of elective courses, also in creative design or even in business administration. Graduate courses may be taken in the final two semesters as technical electives. Small classes permit close contact with professors and a tutorial atmosphere in most courses.

Our facilities include engines, heat transfer equipment, mechanics and vibration experiments, subsonic, supersonic and hypersonic wind-tunnels, water tunnel, controls laboratory, shock tubes, lasers, machine tool laboratory and a data-processing control computer.

The scope of Mechanical Engineering is so broad it cannot be learned in an undergraduate course or even in a lifetime. Our aim is to show the horizons of the subjects and teach those skills and habits which will enable the graduate to learn and apply new scientific developments.

304-499B **Electrical Laboratory IV** 3(0-5-4). *Prerequisite: 304-493A.* Honours section of 304-494; similar in content to 304-494 but involving more challenging assignments.

5.6 DEPARTMENT OF MECHANICAL ENGINEERING

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ENGINEERING

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The Honours Program is primarily designed for the creative, analytically-minded student. The emphasis is on providing a sound foundation in mathematics, physics and the basic engineering sciences. Nevertheless, graduates may pursue a career not only in research, but, by means of elective courses, also in creative design or even in business administration. Graduate courses may be taken in the final two semesters as technical electives. Small classes permit close contact with professors and a tutorial atmosphere in most courses.

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The scope of Mechanical Engineering is so broad it cannot be learned in an undergraduate course or even in a lifetime. Our aim is to show the horizons of the subjects and teach those skills and habits which will enable the graduate to learn and apply new scientific developments.

Curriculum for the B.Eng. Degree in Mechanical Engineering (Regular)

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
189-285A	Mathematics	4	
189-286B	Mathematics	4	
303-090A	Mechanics I	4	
303-107A,B	Solid Mechanics	4	
303-191A,B	Mechanics II	3	
304-181B	Electric Power	3	
304-283A	Electronics	3	
308-080A	Computers in Engineering	2	27
MECHANICAL ENGINEERING SUBJECTS			
305-040A	Thermodynamics I	3	
305-060A	Machine Tool Laboratory	2	
305-090A	Graphics II	2	
305-114B	Dynamics of Mechanisms	3	
305-141B	Thermodynamics II	3	
305-150A	Engineering Statistics	2	
305-161B	Measurement Laboratory	2	
305-215A	Dynamics of Engineering Systems I	3	
305-221B	Mechanics of Deformable Solids	3	
305-230A	Fluid Mechanics I	3	
305-246A,B	Heat Transfer	3	
305-292B	Design I	3	
305-317A	Systems Control	3	
305-362B	Mechanical Laboratory I	2	
305-393A	Design IIa	3	
305-463A	Mechanical Laboratory IIa	2	
305-464B	Mechanical Laboratory IIb	2	
305-494B	Design IIb	3	47

Elective Courses

TECHNICAL ELECTIVES (all 3 credit courses)

305-243A	Energy Conversion
305-272A	Machining Processes
305-273B	Production Systems
305-274B	Operations Research
305-316B	Dynamics of Engineering Systems II
305-531B	Gas Dynamics
305-333B	Aerodynamics: Ideal Fluid Theory
305-334B	Turbomachinery
305-335A	Jet Propulsion
305-371B	Manufacturing Engineering
305-418B	Measurement Engineering
305-419B	Engineering Applications of Lasers and Holography
305-447A	Combustion
305-495A	Design IIIa
305-496B	Design IIIb

Approximately five courses to be selected from those offered by the Department or from other suitable undergraduate or graduate courses. 15

ENGINEERING

GENERAL ELECTIVES

*Two or three courses	6
Total	95

*Students who have not taken courses in material science and graphics at the college level must include these in their university program.

Curriculum for the B.Eng. Degree in Mechanical Engineering (Honours)

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
189-287A	Mathematics	4	
189-288B	Mathematics	4	
189-385A	Mathematics	3	
198-321B	Modern Physics	3	
303-090A	Mechanics I	4	
303-193B	Mechanics II H	3	
304-001A	Introductory Circuit Theory	3	
304-131B	Introductory Electronics	3	
308-080A	Computers in Engineering	2	
308-250B	Methods of Numerical Analysis	3	32
MECHANICAL ENGINEERING SUBJECTS			
305-040A	Thermodynamics I	3	
305-142A	Statistical Thermodynamics	3	
305-161B	Measurement Laboratory	2	
305-219B	Mechanics of Systems	3	
305-222A	Continuum Mechanics	3	
305-230A	Fluid Mechanics I	3	
305-264A	Mechanical Laboratory I H	2	
305-323B	Theory of Elasticity	3	
305-365B	Mechanical Laboratory II H	2	
305-403D	Thesis	9	
305-452A	Mathematical Methods in Engineering I	3	
305-453B	Mathematical Methods in Engineering II	3	39

Elective Courses

TECHNICAL ELECTIVES

Five courses to be selected from those offered by the Department or from other suitable graduate or undergraduate courses.	15

GENERAL ELECTIVES

Three courses (9 credits).	9
Total	95

60

COURSES OFFERED BY THE DEPARTMENT

Elective courses are indicated by the symbol •.

305-E90A,B **Graphics I** 3(1-3-2). The basic aim of this course is to study and practice the principles involved in the representation of objects on paper. The course includes the following topics: scope of graphics, graphics in design, evolution of graphics, the concept of apparent and true shape, the principles of perspective, axonometric, oblique and orthographic projections and introduction to the conventions and standards in drawing.
Professors Ahmed & Hoffman

305-040A **Thermodynamics I** 3(3-1-5). Basic concepts: macroscopic vs. microscopic point of view; states and processes; conservation and transformation of energy. Phase equilibrium; equations of state; thermodynamic properties. Work and heat. First law of thermodynamics; energy equations; internal energy; enthalpy; specific heat of ideal gases. Thermodynamic processes: reversibility, polytropic processes, applications of first law. Second law of thermodynamics. Entropy changes in thermodynamic processes; principle of increase of entropy. Basic power and refrigeration cycles. **Professor Bruce**

305-060A **Machine Tool Laboratory** 2(2-3-1). Basic machine tool laboratory measurements such as measurements of flatness, straightness, length, angle, surface texture, etc. Instruction and practice in the construction, operation and care of machine tools. Basic and advanced operating functions of lathes, shapers, drilling, milling and grinding machines. Making of small assemblies by individual students on machines tooled up for one-off jobs and for limited production runs. **Professor Cherna and Mr. Muehling**

305-090A **Graphics II** 2(2-2-2). Descriptive geometry, pictorial and working drawings and conventions. Computer graphics: simple plotting, auxiliary view and general perspective transformation, contour mapping and introduction to kinematic animation. Drafting room and computer laboratory exercises are assigned. During the last three to four weeks, students will choose either (a) Graphical statics and kinematics, or (b) Design of mechanical parts.
Professor Zsombor-Murray

305-114B **Dynamics of Mechanisms** 3(3-1-5). *Prerequisites: 303-090A, 305-E90A,B.* First principles of analysis; vector geometry; motion; position; displacement; velocity; acceleration; force; inertia and its effects. Kinematic and dynamic analysis of rigid bodies in pure rotation and in pin-connected systems; dynamic balance. The engine complex. Rigid bodies in rolling contact; planetary gear-trains. Bodies in sliding contact; lower and higher sliding pairs. Cam analysis. Emphasis will be placed on graphical methods of solution. **Professor Ahmed**

305-141B **Thermodynamics II** 3(3-1-5). *Prerequisite: 305-040A.* Irreversibility and availability, Gibbs and Helmholtz functions. Maxwell relations: generalized thermodynamic relations and charts; equations of state; Clapeyron equation, Joule-Thomson coefficient, volume expansivity and isothermal and adiabatic compressibility. Ideal and real gas and vapour mixtures, psychrometry and air-conditioning processes. Reactive mixtures, stoichiometry of fuels, flame temperatures, dissociation and chemical equilibrium. Modified and improved power and refrigeration cycles. **Professor Bruce**

305-142A **Statistical Thermodynamics** 3(3-1-5). *Prerequisite: 305-040A.* Classical and quantum mechanical descriptions of molecules, phase space and fundamental postulates of statistical thermodynamics. Gibbsian ensembles and thermodynamic functions, molecular interpretations of the laws of thermodynamics. Simple applications of statistical thermodynamics.
Professor Knystautas

305-144A **Heat Engineering** 3(3-1½-4½). *Prerequisite: 189-285A.* This is a course for Mining and Agricultural Engineering students. Basic principles of thermodynamics, heat transfer and fluid flow are reviewed. Applications of blowers, compressors, engines and heat pumps to mining and agriculture.
Professor Zwarts

305-145B **Mechanical Equipment** 3(2-3-4). *Prerequisite: 305-040A or equivalent.* This is a service course for non-mechanical engineers. Theoretical and practical aspects of fans, blowers, compressors, steam generation, engines and refrigeration.
Professor Forde

305-150A **Engineering Statistics** 2(2-1-3). *Prerequisite: 189-285A,B.* Combinatorial analysis. Concept of random variable; distribution function; mean; variance; correlation; Binomial, Poisson, Normal, Uniform, Student's T, and F distributions. Law of large numbers; central limit theorem. Point and interval estimation; method of maximum likelihood. Hypothesis testing; goodness of fit. Experimental design: analysis of variance; regression analysis. Stochastic processes.
Professor Bach

305-161B **Measurement Laboratory** 2(2-3-1). *Co-requisite: Knowledge of Fortran programming.* Basic experimental laboratory measurements, such as measurement of temperature, pressure, force, torque, small time intervals, velocity, acceleration, flow. Criteria for selection of instruments. Introduction to automatic data acquisition and processing using the DATAC Computer Laboratory, real time programming.
Professor Zsombor-Murray and Mr. Vroomen

305-215A **Dynamics of Engineering Systems I** 3(3-1-5). *Prerequisite: 303-191B.* Free and forced vibrations of linear, one degree of freedom, damped and undamped systems. Applications to vibration transmission and isolation, vibration of beams, whirling of shafts. Multi-degree of freedom systems, coupled vibrations, distributed systems. Modelling of dynamic systems, transfer functions, linearization and lumping, block diagrams.
Professor Forde

305-219B **Mechanics of Systems** 3(3-1-5). *Prerequisites: 303-193B, 189-288B. Co-requisite: 308-250B.* Langrangian and Hamiltonian dynamics. Variational methods. Discrete linear systems; classical and numerical solutions for conservative and non-conservative systems; matric function methods. Electrical-mechanical-acoustical analogues. Stability considerations and closed-loop systems. Vibration of distributed parameter systems. Energy methods. Non-linear vibrations; the phase plane and other methods of solution.
Professor Paidoussis

305-220B **Statistical Mechanics** 3(3-1-5). *Prerequisite: 305-142A.* Classical mechanics, fundamental hypothesis, H-theorem, coarse graining and contraction, Liouville equation, perturbation theory of Bogoliubov, Frieman and Sandri, the kinetic equations of Boltzmann, Fokker-Planck, Vlasov and Lenard-Balescu, the hydro-dynamic equations and transport phenomena, stochastic processes, fluctuations, the Master equation, Onsager relations, Langevin equations and Brownian motion.
Professor Lee

305-221B **Mechanics of Deformable Solids** 3(3-1-5). *Prerequisite: 303-107A,B.* Modern phenomenological theories of the behaviour of engineering materials. Introduction to Cartesian tensors. Stress and strain concepts and introduction to constitutive theory. Applications of theory of elasticity and thermoelasticity. Introduction to plasticity. Deviatoric stress and strain. Introduction to linear viscoelasticity. Simple mechanical models and the nature of viscoelastic behaviour.
Professor Axelrad

305-222A **Continuum Mechanics** 3(2-2-5). *Prerequisite: 303-193B; Co-requisite: 189-385A* Definition of a continuum. The Cauchy stress concept which gives the balance of forces within a material. Vector and tensor fields. Strains and kinematics of deformation. Equations of motion. Thermodynamics of continua. The basic laws for predicting the behaviour of the continuum. **Professor Axelrad**

305-230A **Fluid Mechanics I** 3(3-1-5). *Prerequisite: 189-286B.* Review of relevant mechanics and thermodynamics: fluid properties; stress in a continuum; fluid kinematics; rates of strain, rotation. Control volume analysis; conservation of mass and of linear momentum; Euler and Bernoulli equations; introduction to Navier-Stokes equations. Dimensional analysis and dynamical similarity. Conservation of energy; compressible flow; speed of sound, flow with area change. Laminar and turbulent boundary layers. Turbulent jets, hydrodynamic lubrication. **Professor Newman**

•305-243A **Energy Conversion** 3(2-2-5). *Prerequisite: 305-141B.* Principles of energy conversion; irreversible thermodynamics, unified conversion, plasma, electrochemical and semi-conductor theory. Applications to thermoelectric, thermionic, photovoltaic, M.H.D., fuel cells and other conversion systems. Discussion of energy sources and conversion devices for particular applications, i.e.: isolated systems, power stations, transportation, etc.
Professor Murphy
(to be given by Professor Forde in 1973/74)

305-246A,B **Heat Transfer** 3(3-1-5). *Prerequisite: 189-286B.* Steady state conduction with and without heat generation, extended surfaces. Unsteady state conduction in plates, cylinders and spheres. Convective heat transfer, boundary layer equations, dimensionless parameters, analogy between momentum, heat and mass transfer. Natural convection. Heat exchangers. Radiant heat transfer, black and grey body radiation. Interchange factors. Condensation. Boiling. **Professor Stachiewicz**

305-264A **Mechanical Laboratory I H** 2(0-3-3). *Prerequisite: Candidates must have completed courses in the Mechanical Engineering Program weighted at 30 credits (minimum).* Selected laboratory assignments integrated with the respective lecture courses. **Professor Knystautas**

•305-272A **Machining Processes** 3(2-2-5). *Prerequisite: 305-060A.* Mechanics of metal cutting: chip formation, cutting forces and energy considerations; action of cutting fluids; thermal aspects of cutting; vibrations in cutting. Importance of the machine-tool. Machinability, tool wear and tool life, economical criterion for the selection of cutting parameters. Conventional machining operations; mechanics of grinding; other abrasive processes. Unconventional machining processes: electro-discharge, electro-chemical, laser machining – their principles and areas of application. Effect of machining practice on surface integrity. **Professor Kops**

•305-273B **Production Systems** 3(2-2-5). *Pre- or Co-requisite: 305-494.* Production function. Concepts of system approach in production. Analysis of product design. Value engineering. Process planning. network planning methods. Information systems and automation; NC machine tools. Scheduling and control of operations. **Professor Kops**

•305-274B **Selected Topics in Operations Research** 3(3-1-5). *Prerequisite: 305-150B.* Introduction to the general mathematical programming problem in the context of engineering design; linear programming, queuing theory, Monte Carlo simulation. The above techniques will be used to study the optimization of engineering systems. The applications of linear programming in its various manifestations will be examined in depth. **Professor Zsombor-Murray**

305-292A **Design I** 3(3-1-5). *Prerequisite: 305-E90A,B.* Introduction to design. Problem formulation; idea conception; feasibility study; preliminary design; computer-aided design; optimal design; reliability; hardware, etc. Manufacturing methods and processes; engineering materials. The student's creative ability will be developed by having him participate in a number of design projects. Case-study methods will be used to analyse actual design projects. **Professors Covo & Hoffman**

•305-316B **Dynamics of Engineering Systems II** 3(3-1-5). *Prerequisite: 305-215A.* More advanced topics in dynamics of mechanical systems, including non-linear systems, self-excited systems, etc. Application of analogue computer to the solution of problems in dynamics. A variety of cases involving complete systems will be studied to illustrate the above material and to provide the student with some knowledge of the techniques of solution. **Professor Forde**

305-317A **Systems Control** 3(3-1-5). *Prerequisite: 305-215A.* Analysis of single variable, linear, lumped-parameter, stationary, deterministic, continuous data, feedback control systems. Introduction to feedback control: open-loop vs. feedback control; history, examples, characteristics and cost of feedback control. Classical approach to initially-quiescent linear systems analysis. Generalized mathematical modelling of dynamic engineering systems. Transient, steady-state and frequency response and their inter-relationship in idealized feedback control systems. Time-domain and frequency-domain, absolute and relative stability analysis: Routh-Hurwitz criterion, root-locus method, Nyquist and Bode analysis, Nichols chart. Control action and compensation to improve performance. Examples of time-domain and frequency-domain design of compensators. **Professor Ahmed**

305-321A **Advanced Mechanics of Deformable Media** 3(3-1-5). *Prerequisite: 305-221B.* Continuation and generalization of mechanics of deformable solids. Motion and flow. Analysis of thermodynamics for continuous media. Properties of thermomechanical continua. Fluids. Plasticity. Linear viscoelasticity. Thermoelasticity. **Professor Provan**

305-323B **Theory of Elasticity** 3(2-2-5). *Prerequisite: 305-222A.* Basic equations of elasticity of thermoelasticity. Methods of solution of two and three-dimensional problems. Dynamic problems and wave propagation in solids. Inelastic response behaviour of solids. **Professor Axelrad**

•305-331B **Gas Dynamics** 3(3-1-5). *Prerequisite: 305-230A.* Motion of sound waves. Isentropic flow. Normal shocks. Flow in nozzles, wind tunnels and shock tubes. Oblique shocks. Prandtl Meyer Flow. Flow in inlets and over airfoils. Flow with friction and heat addition. Magnetogasdynamics. Real gas effects. Rarefied flow. Experimental methods. **Professor Guirao**

•305-333B **Aerodynamics: Ideal Fluid Theory** 3(3-1-5). *Prerequisite: 305-230A.* Subsonic aerodynamics. Kinematics; equations of motion, vorticity and circulation; solutions of Laplace's equation; conformal mapping; motion around simple bodies. Two-dimensional aerofoils. Three-dimensional flows; airscrews; low and high aspect ratio wings. Supplemented by demonstrations and experiments in the laboratory. **Professor Newman**

•305-334B **Turbomachinery** 3(2-2-5). *Prerequisite: 305-230A.* The course covers fundamental aspects of turbomachinery in a broad and general manner that will be useful to a wide range of mechanical engineering students and is designed to provide a firm base for more detailed study at graduate level. Topics will include: general concepts and definition of turbomachinery, generalized performance study by non-dimensional analysis, basic theories of energy transfer, fluid flow problems in turbomachinery, design problems, performance matching and stability, control, testing, general problem of propulsion. **Professor Murphy**
(to be given by Professor Wu in 1973/74)

•305-335A **Jet Propulsion** 3(3-1-5). *Prerequisite: 305-230A.* Thermodynamics of open cycles; internal aerodynamics; aerothermochemistry of propellants; nozzle designs and efficiency, aerodynamics of intake diffusers; problems associated with intake design.
Professor Wu
(not to be given in 1973/74)

305-362B **Mechanical Laboratory I** 2(0-3-3). *Prerequisite: Candidates must have completed courses in the Mechanical Engineering Program weighted at 40 credits (minimum).* Experiments illustrating theory covered in courses on thermodynamics, mechanics, fluid dynamics, heat transfer. Professor Zwarts

305-365B **Mechanical Laboratory II H** 2(0-3-3). *Prerequisite: 305-264A.* Continuation of 305-264A.
Professor Knystautas

•305-371B **Manufacturing Engineering** 3(3-1-5). *Prerequisite: 305-150A.* Factory planning, plant location, layout and services, production line techniques, methods engineering, design of work systems, measurement of performance (time study, work sampling, synthetic time data), quality control systems, maintenance, safety.
Professor Cherna

305-393A **Design IIa** 3(2-4-3). *Prerequisite: 305-292B. Pre- or co-requisite: 303-107A,B.* Continuation of Design I, introducing loading and stress calculations, component part design, power transmission and energy storage, friction, lubrication and wear, design using plastic materials, etc. Design projects will involve the application of knowledge acquired in the lectures and in the prerequisite courses to the solution of engineering design problems.
Professor Pfeiffer & Staff

305-403D **Thesis (Honours)** 9(0-9-18). *Prerequisite: Candidates must have completed courses in the Mechanical Engineering Program weighted at 60 credits (minimum).* A research or design project is undertaken by each student, involving interrelated aspects of engineering theory and requiring a theoretical and/or experimental investigation. The student will work under the supervision of one or more staff members; his completed work will be submitted in the form of a thesis.
Professor Paidoussis

305-411B **Systems Control II** 3(3-1-5). *Prerequisite: 305-317A.* Further topics in control systems engineering with emphasis on synthesis. Discrete-time systems, z-transforms. State-space representation of systems; controllability, observability, the state-transition matrix, design using modal analysis. Statistical methods. Survey of system modelling and process parameter estimation techniques. Introduction to optimal control systems. The role of computers in control systems.
Professor Hoffman

•305-418B **Measurement Engineering** 3(3-1-5). *Prerequisite: 305-317A.* The aim of this course is to present in a unified manner the principles and techniques of gathering and "processing" valid and accurate "information". General principles of measurement, functional elements, transducers, systems. General performance characteristics of measurement elements and systems: sensitivity, linearity, loading effect, dynamic response, noise and feedback in measurement. General techniques of information processing, transmission and recording. Common measurement devices and their characteristics — motion, pressure, temperature, flow, heat flux measurement. Case studies. Principles developed in lectures will be illustrated by laboratory demonstrations.
Professor Ahmed

•305-419A **Engineering Applications of Lasers and Holography** 3(3-0-6). *Prerequisite: 308-080A.* Wave optics, Fabry-Perot interferometer, Fresnel & Fraunhofer diffractions; laser physics, population inversion, frequency broadening, laser applications; holography principles, image position analysis, Fourier transform holograms, holography applications.
Professor Wu

•305-447A **Combustion** 3(3-1-5). Selected topics concerned principally with combustion in prime movers, e.g. steam plants and various kinds of engines. Fundamentals of chemical kinetics of combustion reactions. Stability limits and flame speeds of laminar and turbulent diffusion flames, theories of flame propagation. Some causes and possible methods of reduction or elimination of air pollution from prime movers including effects of the physical properties and chemical composition of various fuels, fuel-air ratio, quenching, also discussion of carbon or soot formation. Method of analysis of combustion products including mass spectroscopy and gas chromatography.
Professor Thompson

305-452A **Mathematical Methods in Engineering I** 3(2-2-5). *Prerequisite: Candidates must have completed courses in the Mechanical Engineering Program weighted at 60 credits (minimum).* The underlying theory and application of mathematical methods in fluid dyanmics, vibration, stress and strain analysis, heat transfer, etc. The Eigen-value problem, methods in analysis.
Professor Provan

305-453B **Mathematical Methods in Engineering II** 3(2-2-5). *Prerequisite: 305-452A.* Continuation of the underlying theory and application of mathematical methods in fluid dynamics, vibration, stress and strain analysis, heat transfer, etc. Spherical and cylindrical harmonics, Laplace and Fourier series and transforms, variational perturbation techniques, introduction to theory of distributions and generalized functions. **Professor Provan**

305-463A **Mechanical Laboratory IIa** 2(0-4-2). *Prerequisite: 305-362B.* A selection of laboratory projects will be offered and carried out by students working in small groups. **Professor Knystautas**

305-464B **Mechanical Laboratory IIb** 2(0-4-2). *Prerequisite: 305-463A*.* Continuation of 305-463A. **Professor Knystautas**

305-494A **Design IIb** 3(1-5-3). *Prerequisite: 305-393B.* Students will work in small groups on selected design projects with consultation by the staff. Lecture topics: use and selection of mechanical components, special purpose mechanisms, functional design of machine elements. **Professor Pfeiffer & Staff**

•305-495A **Design IIIa** 3(0-6-3). *Prerequisite: 305-393B.* Lectures will deal with the matrix of the design process, optimization techniques, fatigue design, using conventional or power spectral analysis techniques, composite materials, reliability, factors of safety and their prediction. In the design laboratory, a project will be given to individual students or small groups in the field of the student's interest. Four reports are required, with each student expected to produce a general arrangement drawing and design of one of the major components of the whole system in some detail. Whenever possible, special lectures will be provided by specialists in various fields of interest, either from the university staff or from industry.
Professor Covo and Mr. Edwards

•305-496B **Design IIIb** 3(0-6-3). *Prerequisite: 305-495A.* Continuation of Course Number 305-495A. **Professor Covo and Mr. Edwards**

5.7 DEPARTMENT OF MINING AND METALLURGICAL ENGINEERING AND APPLIED GEOPHYSICS

Chairman

W.M. Williams

Professors

T. Salman
W.M. Williams

Associate Professors

C.A. Beasley
W.G. Davenport
J.E. Gruzleski
R.I.L. Guthrie
J.J. Jonas
B.W. Mackenzie
G.W. Smith
W.M. Telford
J.E. Udd

Assistant Professors

P.A. Distin
O.T. Djamgouz
O. Jensen
C.C. Ku
W.T. Thompson

Lecturers:

J.A. Finch
W.T. Yen

Special Lecturers

R.S. Boire
J.P. Drolet
T.E. Hawkins

Senior Demonstrator

M. Firth

The Department of Mining and Metallurgical Engineering offers separate programs leading to the Bachelor of Engineering degree in Mining Engineering or in Metallurgical Engineering. Both curricula have been extensively redefined in recent years to take account of the new technology which has been developed both in the mining and the metallurgical industries. In addition to regular courses and laboratories, the curriculum includes seminars, colloquia, and student projects reinforced by field trips to metallurgical or mining operations throughout Ontario and Quebec. The training provided is designed to make a graduate useful and confident in his abilities by the time that he obtains his degree so that he can assume substantial responsibility soon after graduation.

Graduates in metallurgical engineering find opportunities in the metal producing, metal processing or metal consuming industries and their jobs may involve them in research, development, operations or management. Some make their careers in allied fields (such as ceramics or welding) or take up positions in consulting groups or with government departments.

Graduates in mining engineering are in demand not only in Canada but in other countries, particularly in Africa and Australia, which have large mining industries. Technical developments, e.g. in the operation of open pit mines and in under-ocean mining, have been important and rapid in recent years. These developments, combined with an international concern to preserve a decent environment, offer a genuine challenge to the imaginative student with a strong engineering interest. Students wishing to specialize in geophysical exploration may take appropriate elective courses in geophysics. Graduates specializing in this field may expect to find employment in the mine, oil and gas exploration industry.

The equipment operated by the Department is the best available, most of it being less than five years old. On the metallurgical side: an electron probe microanalyzer, and electron microscope; one of the largest university facilities in North America for melting and casting; computer facilities; x-ray diffraction machines; modern equipment for mechanical testing and deformation studies and a comprehensive range of analytical equipment. In mining: facilities for the testing of rocks under closely controlled conditions of temperature and humidity, a wide range of equipment for studying environmental factors of importance in mining (dust, illumination, ventilation, etc.), geophysical laboratories, and extensive facilities at Mont St. Hilaire for mining research.

Curriculum for the B.Eng. Degree in Metallurgical Engineering

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
180-331A	Inorganic Chemistry of the Solid State	3	
189-285A,B	Mathematics	4	
189-286B	Mathematics	4	
303-005A,B	Mechanics I	4	
304-181B	Electric Power	3	
305-246A	Heat Transfer	3	
308-080A	Computers in Engineering	2	23
METALLURGICAL ENGINEERING SUBJECTS			
306-011A,B	Fundamentals of Metallurgical Engineering	3	
306-012A	Engineering Thermodynamics	3	
306-013F	Technical Report I	2	
306-114F	Technical Report II	3	
306-115B	Instrumental Analysis	3	
306-140A	Mineral Separation I	3	
306-150B	Extractive Metallurgy I	3	
306-151B	Electrometallurgy	3	
306-152B	Hydrometallurgy	3	
306-160B	Heat Treatment and Phase Transformations	3	
306-161A	Solidification and Casting	3	
306-162B	Strengthening, Deformation and Fracture	3	
306-241A	Minerals Separation II	3	
306-253B	Extractive Metallurgy II	3	
306-342A	Surface Chemistry of Mineral Separation	3	
306-355A	Process Engineering Metallurgy	3	
306-416B	Metallurgical Design	2	49

Elective Courses

TECHNICAL ELECTIVES

Six courses, four of which must be selected from courses offered by the Department and one of which must be a Project.		18	
DEPARTMENTAL ELECTIVES			
306-154A	Metallurgical Thermodynamics	3	
306-263A	Advanced Physical Metallurgy	3	
306-264B	Physical Metallurgy Project	3	
306-441B	Concentrator Circuit Analysis	3	
306-443B	Mineral Separation Project	3	
306-456B	Steelmaking Processes	3	
306-457A	Process Metallurgy Project	3	
GENERAL ELECTIVES			
	Two courses	6	24
		Total	96

Curriculum for the B.Eng. Degree in Mining Engineering and Applied Geophysics

Required Courses		Course Credit	
NON-DEPARTMENTAL SUBJECTS			
186-210A	Mineralogy	3	
186-221A	General Geology	4	
186-232A	Structural Geology	3	
186-441B	Mineral Deposits	3	
189-285A	Mathematics	4	
189-286B	Mathematics	4	
303-005A,B	Mechanics I	4	
303-107A,B	Solid Mechanics	4	
304-181B	Electric Power	3	
308-080A	Computers in Engineering	2	34
MINING ENGINEERING COURSES			
306-001A	Introduction to the Mineral Industry	3	
306-101B	Mining Engineering Techniques	3	
306-123A	Mineral Industry Economics I	3	
306-140A	Mineral Separation I	3	
306-224B	Mineral Industry Economics II	3	
306-225A	Mathematical Applications in the Mineral Industry I	3	
306-227A	Materials Handling	3	
306-230A	Geophysical Exploration	3	
306-241A	Mineral Separation II	3	
306-321B	Behaviour of Rock Structures	3	
306-326B	Mathematical Applications in the Mineral Industry II	3	
306-328B	Mine Environments	3	
306-422B	Mining Feasibility Studies	5	
306-429A,B	Research Project	5	46
Elective Courses			
TECHNICAL ELECTIVES			
	Three courses to be chosen from those offered by the department or from other suitable graduate or undergraduate courses	9	
DEPARTMENTAL ELECTIVES			
306-331A	Advanced Exploration Geophysics I	3	
306-332B	Mathematical Applications in Geophysics	3	
306-433B	Advanced Exploration Geophysics II	3	
306-434B	Potential Theory in Geophysics	3	
306-435	Advanced Exploration Geophysics III	3	
306-436	Advanced Exploration Geophysics IV	3	
GENERAL ELECTIVES			
	Two courses	6	15
	Total		95

ENGINEERING

COURSES OFFERED BY THE DEPARTMENT

The courses in this department have been renumbered to conform with the following classification system. The first three numbers (i.e. 306) are the department code. The next digit is the level of instruction. The last two digits are classified as follows:

01 to 09	elementary mining courses.
10 to 19	elementary and general metallurgical courses.
20 to 29	general mining courses.
30 to 39	geophysics courses.
40 to 49	mineral processing courses.
50 to 59	extractive and process metallurgy courses.
60 to 69	physical metallurgy courses.
70 to 79	seminars.

COURSES IN MINING AND METALLURGICAL ENGINEERING

Elective courses are preceded by the symbol •.

306-E60A,B **Materials Science** 3(2-2-5). Historical significance, mechanical and physical behaviour, polymers and plastics, crystalline materials, phase diagrams, heat treatment, fabrication. **Professors Gruzleski & Williams**

306-001A **Introduction to the Mineral Industry** 3(3-3-3). An introduction to the mineral industry in which the basic parameters involved are developed from a mining engineering viewpoint. The Canadian mineral industry, exploration methods, drilling theory and methods, explosives theory and application to underground and surface mining, introduction to fragmentation of materials, introduction to mining environmental control. **Professor Beasley**

306-011A,B **Fundamentals of Metallurgical Engineering** 3(3-3-3). Introduction: scope and historical development; metals and the evolution of society; economic and geo-political factors; metals for tomorrow. *Mineral Processing:* minerals of economic importance—metallic (iron, copper, lead, zinc, gold), industrial (potash, asbestos, silica); identification of ore and gangue minerals; ore deposits and political economy—exploration, discovery, valuation of mineral deposits; the role and economic analysis of concentration operations. *Extractive Metallurgy:* pyrometallurgy—fuels, ore treatment and furnace processes in the ferrous and non-ferrous industries; hydrometallurgy— leaching, metal recovery and electro-refining of zinc, copper and nickel; halide metallurgy—chlorination (uranium) and fused salt electrolysis (aluminum) processes. *Physical Metallurgy:* crystal structure—defects, diffusion and deformation; phase diagrams, phase reactions and alloy systems; examination techniques—preparation, light and electron microscopy, electron micro-probe, X-ray diffraction and radiography. **Professor Davenport & Staff**

306-012A **Engineering Thermodynamics** 3(3-1-5). Scope and nature of thermodynamics; classical versus microscopic approach, First Law, mechanical work and heat; applications to elastic deformation of solids, thermochemistry, elementary gaseous expansion processes. Second Law, Carnot cycle for ideal gas, Clausius Inequality; application to simple power and refrigeration cycles. Helmholtz and Gibbs functions; application to simple chemical processes. Third Law and absolute entropy. Phase equilibrium for a pure substance. Chemical equilibrium; applications involving gaseous mixtures or ideal solutions. **Professor Thompson**

306-013F **Technical Report I** 2(0-0-6). A technical paper prepared in accordance with instructions from the Department. **Professor Thompson**

306-101B **Mining Engineering Techniques** 3(3-3-3). *Prerequisite: 306-001A.* A study of mining engineering techniques and their application to the development of extractive methods for the exploitation of mineral deposits. Geodynamics, surface and underground mining operations, principles of mine surveying, introduction to materials handling, mining methods, stope and pillar mining, principles of open pit design, development of an underground system below an operating open pit.
Professor Djamgouz

306-104F **Technical Report II** 3(0-0-9). *Prerequisite: 306-013F.* A technical paper prepared in accordance with instructions from the Department, together with oral presentation.
Professor Thompson

306-115B **Instrumental Analysis** 3(2-3-4). *Prerequisite: 180-331A**.* Methods of sample preparation, UV and visible spectrophotometry, infra-red spectrophotometry, flame and atomic absorption spectrophotometry, emission spectroscopy, electro-deposition and coulometry, polarography, potentiometric titrations, gas chromatography, Leco train analysis, X-ray diffraction and fluorescence spectroscopy, radiotracer techniques.
Dr. Finch

306-123A **Mineral Industry Economics I** 3(3-0-6). *Prerequisite: 306-001A.* Incorporation procedures, company direction and directorships, cost accounting and controls, company law, financial statements, federal taxation.
Mr. Boire

306-140A **Mineral Separation I** 3(2-1-6). *Prerequisite: 303-005A,B**.* Energy balances, viscosity, friction, fluid flow, valves and fittings; compressible flow, draft, stacks and compressors, measurement of flow and pressure, flow of solids through fluids, classification, thickening, filtering, fluidization, cyclones. Electrostatic separation, optimization techniques.
Professor Smith

306-150B **Extractive Metallurgy I** 3(2-3-4). *Prerequisites: 306-011A,B**, 308-080A.* An examination of some of the operations and processes of extractive metallurgy and the need for control through the application of chemical and thermodynamic principles; stoichiometry and materials balances – ores, gangue minerals, fluxes and slags; enthalpy and heat balances – fuels, flame temperature, operating temperatures, heat losses, refractories; free energy and process equilibria – process variables and their interactions, optimum conditions.
Professor Smith

306-151B **Electrometallurgy** 3(2-3-4). *Prerequisite: 306-012A.* Coulometry. Conductance and transference in electrolytes. Thermodynamics of electrolyte solutions. Electrochemistry of reversible cells; electrode potentials. Pourbaix diagrams: application to corrosion, leaching and electrodeposition. Irreversible electrode processes: application to corrosion and electrodeposition.
Professor Thompson

306-152B **Hydrometallurgy** 3(2-3-4). *Prerequisite: 306-011A,B.* Unit processes in hydrometallurgy; acid, alkaline and pressure leaching methods. Thermodynamic and kinetic aspects. Purification of leach liquors by ion exchange, solvent extraction and selective precipitation operations. Solid-liquid separation techniques. Recovery of metal values by cementation, electrowinning, and hydrogen precipitation methods. Contemporary plant design incorporating the above principles.
Professor Distin

•306-154A **Metallurgical Thermodynamics** 3(2-3-4). *Prerequisite: 306-012A.* Binary metallic solution: relationships between partial molar properties, limiting laws, regular solutions and microscopic interpretation of partial molar quantities. Heterogeneous equilibria in binary systems and activity data approximations from phase diagrams. Ternary phase diagrams in systems where only one phase has variable composition. Dilute ternary and multicomponent systems; interaction parameters. Concentrated ternary solutions; graphical Gibbs-Duhem integrations.
Professor Thompson

306-160B **Heat Treatment and Phase Transformations** 3(2-3-4). *Prerequisite: 306-011A,B*.* Precipitation, eutectoid reactions, austenite martensite reaction, bainite formation, recovery, recrystallization, grain growth, secondary recrystallization. Industrial heat treatment of ferrous and non-ferrous metals based on these transformations. **Professor Williams**

306-161A **Solidification and Casting** 3(2-3-4). *Prerequisite: 306-011A,B*.* Nucleation and grain refinement, freezing of pure metals, solute redistribution during solidification, constitutional undercooling, dendritic freezing, segregation phenomena, the freezing of gray, white and nodular cast iron, malleable iron, industrial casting techniques, ingot structures. **Professor Gruzleski**

306-162B **Strengthening, Deformation and Fracture** 3(2-3-4). *Prerequisite: 306-011A,B*.* Strengthening of metals by: work hardening, grain size refinement, sub-structure strengthening, solute, precipitate, dispersion, order and martensitic hardening; practical implications. Service failure and prevention; mechanisms of brittle and ductile fracture, creep and fatigue. Industrial shaping and forming; theories and processes. **Professor Jonas**

306-224B **Mineral Industry Economics II** 3(3-0-6). *Prerequisite: 306-123A.* Applications of economic analysis for corporate planning and the structuring of mineral policy in government organizations. The mineral conversion process, the mine in economic theory, Canadian mineral policy, case studies in mining company organization and planning.
Professor Beasley and Messrs. Drolet & Hawkins

306-225A **Mathematical Applications in the Mineral Industry I** 3(3-0-6). *Prerequisites: 189-286B, 308-080A.* The application of probability theory and statistics to decision problems in the mineral industry. Treatment of data using statistical analysis and probability theory, ore reserve estimation and grade control, statistical decision theory applied to exploration strategy, mineral occurrence models, mineral market forecasting techniques.
Professors Ku & Mackenzie

306-227A **Materials Handling** 3(3-3-3). *Prerequisite: 306-101B.* A study of the factors involved in the selection of methods for handling ores, raw materials, and other resources. Materials handling systems for underground and open cut mines, transportation of materials, comparative studies of alternative systems for selected cases, capital and operating costs of equipment. Candidates will prepare and present a colloquium on a selected topic. **Professor Djamgouz**

306-230A **Geophysical Exploration** 3(2-2-5). *Prerequisites: 189-286B, 304-181A,B.* Applications of seismic, gravity, magnetic, electrical and radioactive methods in petroleum and mineral exploration. **Professor Telford**

306-241A **Minerals Separation II** 3(2-3-4). *Prerequisites: 306-001A or 306-011A,B, 306-140A.* General discussion of minerals and ores. Size reduction and liberation. Screening and particle size determination. Handling of solids and pulps. Fundamentals of mineral concentration. Gravity, chemical, electrical, magnetic and electrostatic separations. Introduction to cyanidation and flotation. **Dr. Finch**

306-253B **Extractive Metallurgy II** 3(2-3-4). *Prerequisite: 306-150B.* Equilibrium phase diagrams, phase separation. Non equilibrium solidification, zone refining. Thermodynamics of metal reduction, roasting, refining processes; reaction efficiencies. Physical and chemical aspects of oxide slags and refractories. Analysis of developments in the production of lead, zinc, copper and nickel. Metallurgy of the less common metals. **Professor Guthrie**

•306-263A **Advanced Physical Metallurgy** 3(2-2-5). *Prerequisites: 306-160B, 306-161A, 306-162B.* A lecture and discussion course dealing with selected current topics in physical metallurgy, drawn from the general fields of solidification, mechanical metallurgy, heat treatment processes and alloy development.
Professor Gruzleski and Staff

•306-264B **Physical Metallurgy Project** 3(0-6-3). *Prerequisites: 306-160B, 306-161A, 306-162A.* An experimental or theoretical project, based partly on the student's interests, on some topic in physical metallurgy, e.g. in solidification, deformation, heat treatment, alloying, instrumentation, powder metallurgy, joining processes.
Professor Gruzleski & Staff

306-321B **Behaviour of Rock Structures** 3(3-3-3). *Prerequisites: 303-107A,B, 306-227A.* Summary of the contributions made by various disciplines to the field of rock mechanics, the state of present knowledge, application of basic principles to problems involving the design of competent structures in rock masses.
Professor Udd

306-326B **Mathematical Applications in the Mineral Industry II** 3(3-0-6). *Prerequisite: 306-225A.* The application of management science techniques to decision problems in the mineral industry. Economic evaluation techniques, the mine development decision, Monte Carlo methods for the simulation of uncertainty, allocation theory, dynamic modelling and simulation of milling circuits, planning and scheduling techniques. **Professor Beasley and Mackenzie**

306-328B **Mine Environments** 3(3-2-4). *Prerequisites: 306-001A, 306-140A.* The major elements of the course involve the characteristics of air contaminants, pathogenesis of pneumoconiosis, problems of noise and vibrations, principles of illumination and underground lighting, mine ventilation systems, and design features of dust control and make-up air supply systems. Candidates will prepare a technical paper on a selected topic.
Professor Djamgouz

•306-331A **Advanced Exploration Geophysics I** 3(2-3-4). *Prerequisite: 306-230A.* Applications of gravity and magnetic methods in petroleum and mineral exploration with particular emphasis on instruments, field methods, and interpretation of results.
Professor Telford

•306-332B **Mathematical Applications in Geophysics** 2(2-0-4). *Prerequisite: 306-230A.* Vectors, elementary tensors, and relaxation methods applied to geophysical analysis.
Professor Ku

306-342A **Surface Chemistry of Mineral Separation** 3(2-3-4). *Prerequisite: 306-241A.* Chemical and physical thermodynamic factors underlying surface and interfacial phenomena. Fundamentals of flotation operation. Adsorption mechanisms in relation to floatability. Collection, activation, depression of metallic and non-metallic minerals. Quantification of concentration operations. Principles of automation.
Professor Salman

306-355A **Process Engineering Metallurgy** 3(3-1-5). *Prerequisites: 305-246A*, 306-012A.* Analysis of processes involved in the winning, refining and treatment of metals with special emphasis on transport phenomena. Fick's Laws, interfacial equilibria, single and multicomponent mass transfer operations. Convective systems. Topochemical reactions. Dimensional analysis, pilot plants and modelling. Characteristics of linear and well-mixed reactors; tracer techniques.
Professor Guthrie

306-416B **Metallurgical Design** 2(2-0-4). *Prerequisite: Satisfactory completion of the required courses in the relevant areas of the Metallurgical Engineering program. Departmental approval is necessary.* Design of new metallurgical plants, processes and products based on knowledge acquired in previous core courses; materials and heat balances, metal economics, design and optimization. **Professor Davenport**

306-422B **Mining Feasibility Studies** 5(0-6-9). *Prerequisites: 186-232A, 306-080B, 306-227A, 306-328B, 306-326B.* The preparation of a preliminary feasibility study on the merits of exploiting a mineral deposit based on the results of an exploration program. Individual interpretations and interests are encouraged and wide latitude of content is permitted in the preparation of the report. **Professor Beasley**

306-429A,B **Research Project** 5(0-2-13). *Prerequisites: 306-227A, 306-328B, and others depending on the topic chosen.* To develop an understanding of independent study and research methods including problem definition, selection of approach, problem of solution and communication of results. Research topics, which may be principally experimental, theoretical or involve a critical review of the literature, will be chosen in consultation with individual staff members who will act in a supervisory capacity throughout the project. **Professor Udd & Staff**

•306-433B **Advanced Exploration Geophysics II** 3(2-3-4). *Prerequisite: 306-331A and consultation with instructor.* Applications of electrical methods in petroleum and mineral exploration with particular emphasis on instruments, field operations and interpretation of results. **Professor Telford**

•306-434B **Potential Theory in Geophysics** 2(2-0-4). *Prerequisite: 306-332B.* Applications of potential theory in gravity, electrostatics, magnetostatics, solution of Laplace's and Poisson's equations, earth's gravity and magnetic fields. **Professor Telford**

•306-435 **Advanced Exploration Geophysics III** 3(2-3-4). *Prerequisites: 306-331A, 306-433B and consultation with instructor.* Seismic methods in petroleum exploration, instrumentation, field operations, processing of data and interpretation of results. **Professor Telford**

•306-436 **Advanced Exploration Geophysics IV** 3(2-3-4). *Prerequisite: 306-331A, 306-433B and consultation with instructor.* Seismic methods in mineral exploration and engineering geophysics. Radioactivity method, instrumentation and interpretation of results. Well logging techniques with particular emphasis on instrumentation; interpretation of petroleum well logs; applications in mineral exploration areas. **Professor Telford**

•306-443B **Mineral Separation Project** 3(0-6-3). *Prerequisites: 306-120A, 306-322A.* Ore samples will be given to groups of students to study possible methods of concentration. Open circuit feasibility tests and locked (or cycle) tests will be conducted to evaluate batch and continuous circuits. Economic feasibility of the ore deposit will have to be established and completed with a concentrator design. **Professor Salman & Staff**

•306-444B **Concentrator Circuit Analysis** 3(2-3-4). *Prerequisite: 306-342A.* Preliminary mill design, flowsheet evaluation and concentration circuit analysis. Pulp density relationships, flow of pulp, flow of solids and liquids through a circuit. Design of unit operations in series and in parallel. Circuit controls. Tailings disposal in relation to pollution and environmental control. **Professor Salman**

•306-456B **Steelmaking Processes** 3(2-2-5). *Prerequisites: 306-253B*, 306-355A*.* Physico-chemical, kinetic and economic aspects of the following: iron-making in blast furnaces, sintering operations, coke-making and steelmaking in electric, basic oxygen and open-hearth furnaces. Study of alternative processes. Survey of associated pollution emissions and current abatement methods.
Professor Davenport

•306-457A **Process Metallurgy Project** 3(0-6-3). *Prerequisites: 306-151B, 306-152B, 306-253B, 306-355A.* A wide variety of experimental projects in process metallurgy, covering the fields of hydro-, electro-, pyro-, and chemical metallurgy will be suggested by staff (or students) for detailed investigation and evaluation.
Professor Distin & Staff

5.8 SCHOOL OF COMPUTER SCIENCE

Director

G. Marsaglia

Professor

G. Marsaglia

Associate Professors

J.K.S. McKay
W.D. Thorpe

Assistant Professors

H.D. Abramson
D.J. Burrage
J.R. Butler
T.H. Merrett
C.C. Paige
G.F.G. Ratzer
E. Regener
A.M. Valenti

Lecturers

K. Ananthanarayanan
B.J. Fox
N. Paul
G. Toussaint

Computer science is less than 30 years old, and in this short time has become a field of broad practical and theoretical importance. The creators of electronic calculating machines during the last world war solved many scientific computational problems, and rapid growth of computational numerical analysis followed. Mathematical techniques found applications beyond scientific and engineering problems, creating the new field of operations research. Computers began to be put to uses of such complexity that describing the problems became more difficult than the computations themselves. Instructing the computer became the specialized discipline of programming. Programmers needed languages to communicate with the machine and operating systems to control it, and the field of software was born. The discovery of non-numerical uses of computers led to fields as diverse as large scale data processing, information retrieval and artificial intelligence. On the theoretical side, the problems and applications of computers have created areas of study in the theory of formal languages, the theory of automata and the theory of computation.

Most of the areas of computer science require study at the postgraduate level, and this is the major emphasis of the School of Computer Science. Some of the

postgraduate courses are open to suitably qualified senior undergraduates (see the *Announcement of The Faculty of Graduate Studies and Research*, Section 'E'). At the undergraduate level, a variety of courses is offered, concentrating on the development of programming skills, but including introductions to software, computer systems and numerical analysis. In addition to this *Announcement*, the *Announcement of the Faculty of Science* should be consulted.

COURSES OFFERED BY THE SCHOOL

308-080A **Computers in Engineering 2(2-1-5).** *Prerequisites: Differential and integral calculus. Co-requisite: linear algebra: determinants, vectors, matrix operations.* An introduction to computing and discussion of computing methods for engineering problems. Machine language; FORTRAN; numerical methods (roots of equations, quadrature, simultaneous linear equations, differential equations); use of library subroutines. **Professor Merrett**

308-100A,B **Introduction to Computing 3(1-2-6).** A beginning course in computing designed to introduce general concepts in computing as well as a basic working knowledge of the programming language FORTRAN. Open to any registered student.
The course consists of 12 modules, containing videotape lectures, module booklets, interactive terminal sessions and assignments to be run on the computer. The student learns at his own pace. The only formal lecture is held the first day of a new semester. **Miss Fox**

308-200A,B **Introduction to Computer Science 3(2-0-7).** *Prerequisite: 189-202 or 189-E81B or equivalent. Knowledge of linear algebra is desirable.* Number systems; data representation; algorithm design; FORTRAN; computer methods including searching, sorting, solution of equations, numerical integration and matrix manipulation.
This course is not normally available to Engineering students, who must take either 308-080A or 304-021B, depending on their departmental requirements. **Staff**

308-210A,B **Computer Structure and Assembly Language Programming 3(2-0-7).** *Prerequisite: 308-200A,B.* Computer structure, machine language, instruction execution, addressing techniques, and digital representation of data. Symbolic coding and assembly systems, macro definition, program segmentation and linkage. **Professor Ratzer**

308-220A,B **Digital Computing for Statistical Analysis 3(3-0-6).** *Prerequisite: An introductory course in Statistics, e.g. Psychology 204A.* Characteristics of a higher level programming language (FORTRAN). Methods for computer solution of statistical problems. Intended for students in the Biological and Social Sciences. **Miss Fox**

308-230A **Computers in Data Processing 3(2-0-7).** *Prerequisite: 308-100 or equivalent, or programming experience.* Commercial uses of computers; COBOL; OS/360 facilities including job control language, sort/merge; file processing; comparison with other data processing languages. **Mr. Paul**

308-250A,B **Numerical Analysis 3(3-1-5).** *Prerequisites: 189-286B or 189-288B, 308-080A or 304-021A,B.* Solution techniques for linear, simultaneous, algebraic equations; iterative methods for the solution of nonlinear equations, interpolation and curve fitting, numerical integration by interpolative and quadrature methods, numerical integration of systems of differential equations, including initial value and boundary-value problems, relationship of differential equations to the eigenvalue problem, the matrix eigenvalue problem and its solutions.
Professor Bach (Mechanical Engineering), Professor Burrage

308-300A,B **Programming Languages** 3(2-0-7). *Prerequisite: 308-210D.* Formal definition of programming languages including specification of syntax. Properties of algorithmic languages including PL/1, APL and GPSS. Introduction to theory of compilers and interpreters. Computer solution of non-numerical problems.
Professor Thorpe

308-310B **Computer Software Organization and Design** 3(2-0-7). *Prerequisite: 308-300A,B.* Batch processing, multiprogramming, job control languages, linkage editing, file system organization, time-shared systems, virtual memory.
Professors Ratzer & Valenti

308-315B **Information Structures** 3(2-1-6). *Prerequisite: 308-210 or 304-021.* This course introduces the concepts of data storage and develops competence in data manipulation. The student is expected to write and run his own programs, mainly in FORTRAN. The course discusses the basic types of data structures, their theoretical properties and some of their applications. Contents: storage of arrays, applications to special matrices and scientific computation; queues and stacks, applications to compiler writing; sorting and searching; introduction to list processing and symbolic manipulation.
Professor Merrett

308-320B **Files and Data Bases** 3(2-0-7). *Prerequisites: 308-230, 308-315.* PL/1 language essentials; data sets, files and JCL; sequential files; printing, sorting, updating, indexed sequential files; direct files; files of structured data; data bases.
Professor Merrett

5.9 OUTSIDE DEPARTMENTS OFFERING COURSES FOR THE ENGINEERING CURRICULA

The following courses, offered by departments in the Faculty of Science, form part of the required program in the Faculty of Engineering. For a complete listing of courses in Science and other Faculties, the reader is referred to the appropriate *Announcements.*

5.9.1 DEPARTMENT OF CHEMISTRY

Chairman

L.E. St.Pierre

COURSES OFFERED BY THE DEPARTMENT

180-212A,B **Introductory Organic Chemistry I** 4(3-3-6). *Prerequisites: 180-E10B and 180-E20A, or equivalent courses.* A survey of reactions to aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis and spectra. This course may not be preceded by 180-E22B.
Professors Harpp & Perlin and Mrs. Heyge

180-213A,B **Introductory Physical Chemistry I** 3(3-0-6). *Prerequisites: 180-E20A or equivalent; 189-E14A,B and 189-E15A,B or 189-E16A and 189-E17B.* First law of thermodynamics, enthalpy, thermochemistry, bond energies. Second law of thermodynamics: the entropy and free energy functions. Chemical and thermodynamic equilibrium states. Phase rule. Colligative properties of ideal solutions. Electrochemistry, electrochemical cells. Liquid and liquid surfaces. Chemical kinetics. This course may not be preceded by 180-E24B.
Professors Eisenberg & Patterson

180-250A **Selected Topics in Organic and Physical Chemistry 3(3-0-6).** *Prerequisites: 180-212A,B (E22B), 180-213A,B (E24B).* Chemistry of alcohols, ethers, acids, esters and carbonyl compounds. Chemical kinetics and introduction to catalysis. Electrochemistry. The topics to be discussed will be of particular interest to students in chemical engineering.
Professors Eisenberg, Farrell & Grosser

180-331A **Inorganic Chemistry of the Solid State 3(3-0-6).** *Prerequisites: 180-E10A and E20A or equivalent* Primarily, but not exclusively, for engineers. Electronic structure and properties of the elements in relation to the Periodic Table. The solid state: structure, bonding, magnetic properties of metals and alloys. Descriptive chemistry of the metals. **Professor Hogan**

5.9.2 DEPARTMENT OF GEOLOGICAL SCIENCES

Chairman

C.W. Stearn

COURSES OFFERED BY THE DEPARTMENT

186-210A **Introductory Mineralogy 3(2-3-4).** Structures, composition and properties of the major rock-forming and ore minerals. **Professor Stevenson**

186-221A **General Geology 4(3-2-7).** A survey course in physical geology with emphasis on economic and engineering aspects. **Professor Grice**

186-232A **Structural Geology 3(2-3-4).** *Prerequisite: 186-E12B or 186-221A.* A systematic survey of rock structures, their origins and practical importance.
Professor Eakins

186-441B **Mineral Deposits 3(2-3-4).** *Prerequisites: 186-210A, 186-232A.* Nature, origin, mode of occurrence and classification of deposits of metallic and non-metallic minerals; typical occurrences; geographical distribution.
Professor MacLean

5.9.3 DEPARTMENT OF MATHEMATICS

Chairman

E. Rosenthall

COURSES OFFERED BY THE DEPARTMENT

189-284A **Calculus and Linear Algebra 4(4-0-8).** Introduction to linear algebra, infinite series, partial differentiation, multiple integration. This course is intended for students who have not had the equivalent of Calculus III of the CEGEP curriculum and must be taken concurrently with 189-285A.

189-285A,B **Introduction to Ordinary Differential Equations 4(4-1-7).** Ordinary differential equations: first order equations, homogeneous and non-homogeneous higher order constant coefficient equations, matrix diagonalization techniques with applications to systems of first order linear equations, Laplace Transform techniques, series solutions of second order linear variable coefficient equations, numerical methods.

189-286B **Introduction to Boundary Value Problems 4(4-1-7).** *Prerequisite: 189-285A,B.* Partial differential equations: elements of two and three dimensional vector differential and integral calculus including the theorems of Gauss, Stokes and Green, separation of variables in orthogonal coordinate systems, application of Fourier theory to partial differential equations, the wave equation, Laplace's equation, heat equation, boundary value problems and Sturm–Liouville theory.

189-287A **Linear Analysis and Differential Equations I** 4(4-1-5). Systems of linear algebraic equations, vector spaces; fundamentals of ordinary differential equations, Laplace transform solution techniques, solution by series, the method of Frobenius, special functions; linear operators and matrix representatives, eigenvalue theory, Cayley-Hamilton theorem; systems of ordinary differential equations, numerical solution techniques.

189-288B **Linear Analysis and Differential Equations II** 4(4-1-5). *Prerequisite: 189-287A.* Inner product spaces, matrix diagonalization, Sturm–Liouville theory, Fourier analysis; review of vector analysis, orthogonal curvilinear coordinates; introduction to boundary value problems; solution techniques for Laplace, wave and diffusion equations in cartesian, cylindrical and spherical coordinates, eigenfunction expansions, non-homogeneous problems, Green's functions.

189-381A **Functions of a Complex Variable** 3(3-0-6). *Prerequisite: 189-286B.* Analytic functions, elementary functions, Cauchy-Goursat theorem and its consequences, power series, poles and residues, complex inversion theorem, conformal mapping, Schwartz-Christoffel Transformation, applications to problems in engineering and physics.

189-382A **Introduction to Statistics** 2(3-2-1). *Prerequisite: 189-286B.* Probability distributions, expected values of a random variable, normal distributions, sampling and sampling distributions, t, x^2 and F distributions, parameter estimations, confidence intervals, hypothesis testing, regression analysis and analysis of variance.

189-383B **Probability** 3(3-0-6). *Co-requisite: 189-286B.* Discrete probability distributions and random variables, probability densities and distribution functions, continuous random variables, expectation, sums of random variables, sampling theory, introduction to stochastic processes.

189-384B **Probability** 3(3-0-6). *Co-requisite: 189-288B.* Similar in content to 189-383B but presented in greater depth.

189-385A **Complex Variables** 3(3-0-6). *Prerequisite: 189-288B.* Analytic functions, Cauchy-Riemann equations, Cauchy's theorem, residue calculus, inversion integral for Laplace transforms, conformal mapping, Poisson's integral formula, analytic continuation, Riemann surfaces, complex variable and integral transform methods of solution to boundary value problems.

5.9.4 DEPARTMENT OF PHYSICS

Chairman

J.M. Robson

COURSES OFFERED BY THE DEPARTMENT

198-271B **Quantum Physics** 3(3-0-6). Physical basis of quantum mechanics. The Schroedinger equation. Applications to problems in one dimension. The hydrogen atom. Electron spin and magnetic moment; the exclusion principle; quantum statistics. Periodic potentials.

198-321A **Modern Physics** 3(3-0-6). *Prerequisite: 303-182 or 303-187.* Concepts of quantum mechanics; observables, states, operators. The Schroedinger equation; solution of one dimensional problems, potential well, potential barrier, periodic potential. The hydrogen atom. Particle statistics; Boltzmann, Fermi-Dirac distribution functions; applications to solids.

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McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

1973-74

Dawson Hall, Room 313
805 Sherbrooke St. West
Montreal 112, Que., Canada
Telephone: (514) 392-5092

GENERAL INFORMATION AND FACULTY REGULATIONS

NOTE: While every effort has been made to give the most recent estimates of Fees and other charges, the University reserves the right to change any fee without notice.

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

Legal Deposit II 73.

CALENDAR FOR SESSION 1973-74

1973

June 8	Convocations.
July 3	Last day for submitting completed applications for admission.*
August 20	Last day for submitting Doctoral theses (in time for Autumn convocation).
August 27	Last day for submitting Master's theses (in time for Autumn convocation).
September 7	Registration begins. It is recommended that new students report to their departments not later than this date.
September 20	Lectures begin, first term.
September 21	Last day to complete registration.
September 24	Last day for submitting reports on Doctoral theses for Fall convocation.
October 1	Last day for submitting reports on Master's theses for Fall convocation.
October 10	Last day for forwarding changes in programs to Dean's Office.
November 1	Last day for changes in first term and full term courses. (Some departments have earlier deadlines.)
November 6	Convocation.
December 19	Lectures end, first term.

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January 15	Lectures begin, second term. Last day for: (1) changing academic status in current session; (2) registration of non-resident students; (3) payment of second term fees.
January 21	Lectures begin, second term.
February 1	Last day for applying for graduate fellowships. Nominations of examiners to be submitted to the Faculty of Graduate Studies and Research for all theses for the Spring Convocation.
March 20	Last day for submitting Doctoral theses (in time for Spring convocation).
March 27	Last day for submitting Master's theses (in time for Spring convocation. Usual date for announcing fellowships and other awards.
April 19	Lectures end, second term.
May 3	Last day for submitting reports on Doctoral and Master's theses for Spring Convocation.
May 14	Last day for Doctoral oral examinations.
June 3	Nomination of examiners to be submitted to the Faculty of Graduate Studies and Research for all theses for the Fall Convocation.
June 5 to 8	Convocations.

*Several departments follow a different rule. If you are in doubt, inquire of the department in which you wish to work.

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1.1 DEPARTMENTS OF STUDY (Sectional Indices)

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Biology	**A6**
Chemistry (Agricultural)	**A1**
Engineering (Agricultural)	**A2**
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Horticulture	**A8**
Microbiology	**A9**
Parasitology	**A10**
Physics (Agricultural)	**A3**
Plant Pathology	**A11**
Soil Science	**A12**
Wildlife Biology	**A13**

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Psychology	**B7**
Wildlife Biology	**B8**

HUMANITIES — SECTION "C"

Art History	**C1**
Classics	**C2**
Comparative Literature	**C8**
English	**C3**
French	**C4**
German	**C5**
Greek	**C2**
Islamic Studies	**C6**
Italian	**C7**
Latin	**C2**
Linguistics	**C8**
Music	**C9**
Philosophy	**C10**
Religious Studies	**C11**
Russian and Slavic Studies	**C12**
Spanish	**C13**

MEDICAL AND ALLIED SCIENCES — SECTION "D"

Anatomy	D1
Audiology	D6
Biochemistry	D2
Biomedical Engineering	D3
Dentistry	D4
Epidemiology and Health	D5
Human Communication Disorders	D6
Medicine (Experimental)	D7
Microbiology and Immunology	D8
Neurology and Neurosurgery	D9
Nursing (See Section "G")	G4
Otolaryngology	D10
Parasitology (See Section "A")	A10
Pathology	D11
Pharmacology and Therapeutics	D12
Physiology	D13
Psychiatry	D14
Radiology	D15
Surgery (Experimental)	D16

PHYSICAL SCIENCES AND ENGINEERING — SECTION "E"

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Biomedical Engineering	E2
Chemical Engineering	E3
Chemistry	E4
Civil Engineering	E5
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Crystallography	E7
Electrical Communications (See Elect. Eng.)	E8
Electrical Engineering	E8
Geography	E9
Geological Sciences	E10
Geophysics, Applied (See under Mining Eng.)	E16
Glaciology (See under Geography)	E9
Marine Sciences (See also Section "B")	E11
Mathematics	E12
Mechanical Engineering	E13
Mechanics, Applied (See under Civil Eng.)	E5
Meteorology	E14
Mining and Metallurgical Engineering	E15
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SOCIAL SCIENCES — SECTION "F"

Air and Space Law	F7.2
Anthropology	F1
Community Planning (See under Political Science and also under Architecture, Section "E")	F8.4
Comparative and Foreign Law	F7.3
Developing-Area Studies	F2
Economics	F3
French Canada Studies	F4
Geography	F5
History	F6
International Relations	F8
Islamic Studies	F8.4

Law F7
Political Science F8
Psychology F9
Sociology F10

EDUCATION — SECTION "G"

LIBRARY SCIENCE — SECTION "H"

MANAGEMENT — SECTION "I"

2 STAFF

2.1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C. — *Principal and Vice-Chancellor*
STANLEY B. FROST, B.D. (Richmond), M.Th. (London), D.Phil. (Marburg), D.D. (Vic., Tor.), D.Litt. (Mem.) — *Vice-Principal (Administration and Professional Faculties)*
EIGIL PEDERSON, B.A. (S.G.W.U.), M.A. (McG), Ed. D. (Harv.) — *(Academic)*
WALTER F. HITSCHFELD, B.A.Sc. (Tor.), Ph.D. — *Dean of the Faculty*
D. F. R. GILSON, B.Sc. (London), M.Sc. (U.B.C.), Ph.D. (U.B.C.) — *Associate Dean*
J. J. JONAS, Ph.D. (Cantab.), B.Eng. — *Associate Dean*
J. H. THOMPSON B.A. (Winnipeg), M.A. (Manitoba) — *Secretary of Faculty*
B. J. GICK, B.Com. (S.G.W.U.) — *Research Grants and Awards Officer*
W. D. CROFT, B.A.Sc. (U. of T.) — *Director, Office of Industrial Research*
L. H. LORD, M.Sc. (Corn.), D.V.M. (Ont. Vet. Coll.) — *Animal Care Officer*
J.H. HOLTON, B.Com. (Tor.) — *Secretary of the Board of Governors*
C. M. McDOUGALL, D.S.O., B.A. — *Registrar*
A. C. McCOLL, D.F.C., B.Com., C.A. — *Director of Finance*

2.2 EXECUTIVE COMMITTEE OF COUNCIL

THE DEAN, *Chairman*

Prof. B. E. BAKER
Ms. J. BROWN
Prof. G. S. CAVADIAS
Prof. N. DE TAKACSY
Prof. G. MACLACHLAN
Prof. J.R. MALLORY
Mrs. F. E. SHLOSSER
Prof. P. SILVESTER
Prof. S. SOLOMON
Prof. J.A. TRENTMAN

2.3 COUNCIL OF THE FACULTY

Council consists of about 200 staff members and about 100 graduate student members.

2.4 MEMBERS OF THE FACULTY

Every full-time member of the teaching staff, who is actively engaged in the instruction of graduate students, is a member of the Faculty.

3 FACULTY REGULATIONS

3.1 GENERAL STATEMENT

1. The Faculty of Graduate Studies and Research administers programs leading to higher degrees and diplomas and recommends candidates to receive them. All communications should be directed to The Dean, Faculty of Graduate Studies and Research, McGill University, P.O. Box 6070, Montreal 101, Que. The Dean's Office is in Dawson Hall.

The Faculty normally delegates most of its powers to an elected Council. The Council in turn elects an Executive Committee.

3.2 DEGREES AND DIPLOMAS

2. Graduate students may proceed to one of the following degrees: Master of Architecture (M.Arch.), Master of Arts (M.A.), Master of Business Administration (M.B.A.), Master of Civil Law (M.C.L.), Master of Commerce (M.Com.), Master of Education (M.Ed.), Master of Engineering (M.Eng.), Master of Engineering (Mining) [M.Eng. (Mining)], Master of Laws (LL.M.), Master of Library Science (M.L.S.), Master of Musical Arts (M.M.A.), Master of Nursing (Teaching) [M.N. (Teaching)], Master of Science (M.Sc.), Master of Science (Applied), [M.Sc. (Appl.)], Master of Social Work (M.S.W.), Master of Urban Planning (M.U.P.), Doctor of Civil Law (D.C.L.), Doctor of Education (D.Ed.), Doctor of Philosophy (Ph.D.); or to a diploma in Air and Space Law, Advanced Social Work Practice, Civil, Electrical, Mechanical or Mining Engineering, Engineering Aspects of Arid Land Development, Geological Sciences, Management, or Social Work.

3.2.1 DIPLOMAS

3. The Faculty offers the following Diplomas:

Air and Space Law
Advanced Social Work Practice
Epidemiology and Health
Education
Engineering Aspects of Arid Land Development
Mining Engineering
Geological Sciences
Management

a) Candidates for diplomas must comply with Faculty and Department regulations. Attention is particularly directed to those quoted below.

b) Candidates, whose tuition will include regular, i.e. day, courses of a graduate department, must apply for admission to the Graduate Faculty prior to the beginning of their first session.

c) Candidates must register at the normal time and place. (See calendar of dates.)

d) Candidates, whose work for a diploma comprises courses administered by the department of Continuing Education, i.e., evening courses, must register in that Department at the beginning of each session. At the beginning of the final session, that in which they

expect to complete all requirements for the diploma, they must apply for admission to the Graduate Faculty and register therein.

e) Application Forms and Registration Forms may be obtained by all candidates (other than those for the Diploma of Management) at the office of the department concerned. When completed they should be returned to the Dean's Office before September 21.

f) Candidates for the Diploma in Management will obtain their Application Forms and Registration Forms at the office of the Department of Continuing Education. When completed they should be returned to that office, together with the Registration Fee of $25, before October 10.

g) In some cases regular day-time students are required or permitted to take evening courses administered by the Department of Continuing Education. Such students must register in that Department also. Any graduate student, who fails to comply with this regulation, cannot receive credit for the work done there.

h) An additional fee of $5 will be applied to the Registration Fee, paid after September 30 (or October 30 as the case may be) up to the final date of January 15.

3.2.2 MASTER'S DEGREES

4. The Faculty offers Master's degrees of:

Architecture
Arts
Business Administration
Education
Engineering
Law
Library Science
Musical Arts
Nursing (Teaching)
Science
Social Work
Urban Planning

3.2.2.1 Normal Procedures for the Master's Degree

a) *At least* one full session (or two half-sessions) of resident study at McGill University is required for a Master's degree. This is a minimum requirement, and it will usually be found impossible to complete the work for the degree within this time. The M.Sc. (Applied), the M.Eng. (Mining), the M.A. in History (second option), in Religious Studies and in Islamic Studies, the M.U.P., M.Arch. in Community Planning, the M.L.S. and the LL.M. degrees cannot be completed within one academic session. The M.B.A. degree requires two full years to complete. Residence credit is not given for work done during the summer vacation, either at McGill (save in the French Summer School and in Education) or elsewhere; the majority of graduate students find it necessary, however, to devote the greater part of their summers to work upon the thesis problem. The procedure to be followed in applying for admission and in completing registration is described below (Regulation 32). The candidate is required to pass the examinations in the courses which have been indicated to him by the department and which are recorded on his approved registration form (except such courses as are marked "not for examination") and he may also be required to pass a general examination in his major subject; the marks or classes he obtains in these examinations are part of his qualifications for the degree. The candidate for a research degree must also present a thesis on some topic connected with his major subject. The subject of the thesis may be entered upon the registration form and the title if not decided at that date must be subsequently submitted in writing through the chairman of the department concerned to the Dean's Office at least four months before the thesis is handed in. A thesis for the Master's degree, while not necessarily requiring an exhaustive review of work in the particular field of study, or a great deal of original scholarship, must show familiarity with previous work in the field and must demonstrate the ability to carry out research and to organize results, all of which must be presented in good literary style. The thesis normally consists of 80 to 100 typescript pages. *For further regulations regarding theses see Regulation 57.*

b) Candidates who intend to proceed later to the Doctor's degree should note the language requirements (Regulation 25) and are strongly advised to take the examination in at least one language while working for the Master's degree. Candidates for the master's degree in Religious Studies are required to pass an examination in one foreign language.

c) A Government laboratory may be approved by the Faculty as a research institution (see Regulation 18c).

3.2.2.2 The Degree of Master of Architecture

5. a) Instruction for the degree of Master of Architecture is given in the following Departments of study, which rank as "subjects."

Architectural Design
Housing

b) Candidates must hold the degree of Bachelor of Architecture or an equivalent degree, and their undergraduate rank must, in general, be equivalent to high second-class standing.

c) One only of the above subjects may be taken.

Each candidate is required to take at least one course in his subject involving at least one year of resident study; in the Community Planning option requirements cannot be completed in one year.

In addition he is required to meet in personal conference, at least once a week, the professor under whose supervision he is preparing his thesis.

3.2.2.3 The Degree of Master of Arts

6. a) Instruction in the Faculty of Graduate Studies and Research leading to the degree of Master of Arts is provided in the following Departments of study:

Anthropology
Art History
Classics
Economics
Education
English
French
Geography
German
History
Islamic Studies
Italian
Linguistics
Mathematics
Philosophy
Political Science
Psychology
Religious Studies
Russian
Sociology
Spanish

Studies in other subjects, including sciences and religious studies, may be undertaken as cognate courses with the permission of the Departments concerned.

b) Candidates must hold the B.A. degree or an acceptable equivalent degree. They must have obtained at least second class Honours at McGill University, or its equivalent elsewhere, in the subject or subjects which they propose to study.

3.2.2.4 The Degree of Master of Business Administration

7. The degree is offered in the Faculty of Management.

Applicants for admission must have high second class standing in undergraduate courses in Arts, Commerce, Engineering, etc. and submit satisfactory scores in the Princeton Admission Tests for Graduate Studies in Business.

3.2.2.5 The Degree of Master of Education

8. A detailed description of this degree can be obtained from the Director of Graduate Studies, Faculty of Education.

3.2.2.6 The Degree of Master of Engineering

9. a) Instruction for the degree of Master of Engineering is given in the following Departments of study, in which definite courses may be selected:

Chemical Engineering
Civil Engineering
Electrical Engineering
Mechanical Engineering
Metallurgical Engineering
Mining and Metallurgical Engineering

b) Candidates must hold the degree of Bachelor of Engineering, or an equivalent degree, and their undergraduate academic rank must, in general, be equivalent to high second-class standing.

c) The establishment of the degree of Master of Engineering does not prevent a properly qualified holder of the degree of Bachelor of Engineering, or the equivalent, from proceeding to the degree of Master of Science in pure science.

d) For the degree of Master of Engineering (Mining) see under Mining and Metallurgical Engineering in **Section E.**

3.2.2.7 Master's Degrees in Law

10. a) Instruction leading to the degree of Master of Civil Law (M.C.L.) is offered in the following Departments of study:

Roman Law
Civil Law
Commercial and Maritime Law
Public Law, including International Law
Legal Problems of Government Control of Business
Law and Constitution of International Organizations

At least one session of full-time resident study, or its equivalent, is required; this includes the passing of one or more courses and the preparation, under supervision, of an acceptable thesis.

b) The degree of Master of Laws (LL.M.) is offered in the Institute of Air and Space Law and in the Institute of Comparative Law. The program involves at least one full-time session of resident study including prescribed and elective courses; students whose work has been found satisfactory will be permitted to complete requirements for the degree by submitting an acceptable dissertation in a subsequent session, which need not be spent in residence.

c) Applicants for admission to candidacy for the M.C.L. or LL.M. degrees must hold an acceptable degree in Law or equivalent qualifications. For further particulars see the entry under Law, or consult the Secretary of the Faculty of Law.

3.2.2.8 The Degree of Master of Library Science

11. This two-year postgraduate course requires for entrance a Bachelor's degree from an approved university. Courses in the humanities, sciences and social studies are preferred and a knowledge of at least one language other than English is expected.

For further information apply to the office of the Graduate School of Library Science.

Candidates should notify the Director of the Graduate School of Library Science of their intention to follow the course leading to the M.L.S. degree as early as possible, preferably before June 1. Formal application to the Faculty of Graduate Studies and Research should also be made as early as possible.

3.2.2.9 The Degree of Master of Musical Arts

12. For the degree of Master of Musical Arts see the details given under Music in **Section C.**

3.2.2.10 The Degree of Master of Nursing (Teaching)

13. For the degree of Master of Nursing (Teaching) see the details in the calendar for the School of Graduate Nurses.

3.2.2.11 The Degree of Master of Science

14. a) Instruction in the Faculty of Graduate Studies and Research leading to the degree of Master of Science is provided in the following Departments of study:

Agricultural Chemistry
Agricultural Engineering
Agronomy
Anatomy
Animal Science
Biochemistry
Biology
Chemistry
Computer Science
Crystallography
Electrical Communications
Entomology
Epidemiology and Health
Marine Sciences
Mathematics
Meteorology
Microbiology and Immunology
Microbiology (Macdonald College)
Mining and Metallurgical Engineering
Neurology and Neurosurgery
Otolaryngology
Parasitology
Pathology
Pharmacology
Physics
Physiology

Experimental Medicine
Experimental Surgery
Fluid Mechanics
Geography
Geological Sciences
Geophysics
Glaciology
Horticulture
Human Communication Disorders
Plant Pathology
Psychiatry
Psychology
Radiology
Soil Science
Wildlife Biology

b) Candidates must hold a Bachelor's degree with at least second class standing in an Honours course at McGill University, or its equivalent. Candidates with an M.D. degree must have attained high standing.

3.2.2.12 The Degree of Master of Science (Applied)

15. The degree of Master of Science (Applied) was established in 1949 to permit approved departments to offer postgraduate training of a professional and vocational character, with less emphasis on theoretical knowledge and research than in other degrees of this Faculty but with no lower standards either for admission or for completion of requirements. Curricula of this type are at present available in the Departments of Geological Sciences (Engineering Geology, or Mineral Exploration), Human Communication Disorders, Nursing and Psychology, whose statements should be consulted. For the M.Sc (A) in Nursing, please consult the calendar of the School of Graduate Nurses.

3.2.2.13 The Degree of Master of Social Work

16. Inquiries should be directed to the Director of the School of Social Work, and the *Announcement* of that School should be consulted.

3.2.2.14 Master's Degree in Theology

17. The degree of *Sanctae Theologiae Magister* (S.T.M.) is being revised. Those who wish to obtain a Master's degree in Theology could consult the Dean of the Faculty of Religious Studies.

3.2.3 DOCTORAL DEGREES

3.2.3.1 Regulations for the D.C.L. Degree

18. See entry in **Section F.**

3.2.3.2 Regulations for the D.Ed. Degree

See entry in **Section G.**

3.2.3.3 Regulations for the Ph.D. Degree

a) Candidates for the degree of Doctor of Philosophy must hold the degree of B.A. with Honours, or B.Sc. with Honours, or B.Eng. or B.Com., or B.Sc. (Agr.), or B.D. or M.D., with at least good second-class standing in each case, from McGill University, or some equivalent qualification.

b) Many departments will require candidates who do not already hold an appropriate Master's degree to register for such a degree rather than for the Ph.D. degree directly; but may later recommend to the Executive Committee of the Faculty that candidates of undoubted promise should be allowed to proceed directly towards the Ph.D. degree without being required to submit a Master's thesis; in other cases, permission to proceed towards the Ph.D. degree may depend on the standing obtained in the Master's degree.

c) Candidates, must follow a course of at least three years' resident study at a university or other institution of higher learning or research; this is a minimum requirement, and there is no guarantee that the work for the degree can be completed in this time. Two at least of these years must be spent at McGill University, and these should if possible include the final year. Departments, with the approval of the Executive Committee may permit or require candidates to spend one session at another institution (for fees, etc., see Regulation 38); it is understood that this session must be one of full-time work, and that the institution selected must be able to provide expert supervision and facilities for research appropriate to

the candidate, in the field selected. Candidates are therefore required to submit a program of the work projected and particulars of the institution selected, for approval by the Committee, before undertaking any such period of study apart. They must register at McGill as non-resident students; and the Committee may require reports on progress from time to time or at the end of the period for which credit is claimed. The Faculty may make specia exceptions to these general regulations concerning residence; it may permit McGill graduates, for example, to spend two years in study apart at approved institutions and to reside at McGill for the final year only. Residence credit is not granted for work done during the summer vacations, either at McGill or elsewhere; but it is the custom for candidates to spend the greater part of each summer in work upon the thesis problem, and those who do not do so are unlikely to complete a satisfactory thesis in the prescribed minimum time; in certain subjects, *e.g.* in Agricultural Sciences, summer researches are indispensable.

19. A student who has obtained a Master's degree at McGill University or at an approved institution elsewhere, and is proceeding in the same subject to a Ph.D. degree may, on recommendation of the department, be permitted to count the work done for the former as the first year (Ph.D. I) of his resident study for the Doctor's degree (see Paragraph 18c). The attention of students seeking admission on this basis is drawn to the language requirements (Paragraph 25d), for which they are advised to prepare themselves in advance.

20. Candidates must select one major subject (see Paragraph 55d). Programs leading to the degree of Doctor of Philosophy are offered in the following major subjects:

Mathematics
Agricultural Engineering
Agronomy
Anatomy
Animal Science
Anthropology
Art History
Biochemistry
Biology
Chemical Engineering
Chemistry
Civil Engineering
Classics
Computer Science
Economics
Electrical Engineering
English
Entomology
Epidemiology and Health
French
Geography
Geological Sciences
German
History
Human Communication Disorders
Islamic Studies
Linguistics
Marine Sciences
Mathematics
Mechanical Engineering
Medicine (Experimental)
Metallurgical Engineering
Meteorology
Microbiology and Immunology
Microbiology (Macdonald College)
Mining and Metallurgical Engineering
Neurology and Neurosurgery
Parasitology
Pathology
Pharmacology
Philosophy
Physics
Physiology
Plant Pathology
Political Science
Psychology
Religious Studies
Russian
Sociology
Soil Science
Surgery (Experimental)

21. In special cases, other departments may be authorized to provide courses which will lead to this degree. Candidates desiring to proceed to the degree of Doctor of Philosophy in departments other than those mentioned above should, therefore, make direct application to the Dean of Graduate Studies and Research, asking whether courses in such subjects can be provided.

22. The course of study which the candidate desires to follow must, before he enters upon it, have been submitted to the Chairmen of the several departments concerned and have received their approval (see Paragraph 32b).

23. **Comprehensive Examination.** The first two years (Ph.D. I, Ph.D. II) include instruction, training and direction in the candidate's field of study, with the object of giving him a knowledge of his particular subject and its relation to cognate branches of learning and of preparing him for independent investigation. The candidate's comprehensive examination is held

at the end of the second year, unless otherwise specified by departmental regulations approved by the Faculty. This examination covers all graduate work previously taken by the candidate, including his prescribed reading, and may also include any work fundamental thereto. The candidate must show that he possesses a good general knowledge of the whole science or branch of learning which he has selected as his major subject. The examination may be written or oral or both. The result of this examination determines whether the candidate is allowed to proceed with his candidature. The final years (Ph.D. III and, if necessary, IV) are devoted chiefly to the preparation of the thesis, the research for which is normally begun in the first year.

24. The candidate is also required to pass the examinations in the courses indicated by the department, and recorded on his approved Registration, unless they have been marked "not for examination."

Language Requirements

25. a) **English.** Students whose mother tongue is not English may be required by the Chairman of their department to take, and pass, courses offered by the Continuing Education Department.

b) **Other Languages.** The following departments do not usually require an examination in languages other than English:

Animal Science
Biochemistry
Biology
Business Administration
Chemical Engineering
Chemistry
Electrical Engineering
Education
Geological Sciences
Law
Marine Sciences
Mechanical Engineering
Metallurgical Engineering
Meteorology
Microbiology and Immunology
Microbiology (Macdonald College)
Neurology and Neurosurgery
Nutrition
Parasitology
Pharmacology and Therapeutics
Physics
Psychology
Soil Science
Surgery, Experimental

Students should inquire of these departments whether any other requirements have been substituted for those relating to languages.

c) All departments not listed above require proficiency in one or two languages other than English and normally conform to the following regulations. In all cases students should consult departmental regulations concerning language requirements.

Language requirements for the Ph.D. degree are met through demonstrated reading knowledge. The usual languages are French, German or Russian, but in particular instances another language may be offered on the recommendation of the department and by authorization of the Dean.

The normal examination requirements are:

(1) One examination in each of two of the following languages: French, German, Russian or such other modern language as may be authorized by the Dean.

OR

(2) Two examinations in a single language. The first examination is comparable in difficulty with that indicated in (1) above; the second, normally written one year later, demands greater proficiency. *All* language requirements must be fulfilled and the marks reported to the Dean's Office *before* the Dean will accept the thesis.

d) Language Reading Proficiency Examinations in French, German or Russian will be conducted by those departments. Students may, however, demonstrate acceptable competence by a pass standing in undergraduate language courses taken at McGill under the following conditions:

(1) Two *full* courses in a language presented as a subject for admission to undergraduate study at McGill, OR

(2) Three *full* courses in a language not presented as a subject for admission to undergraduate study at McGill.

e) Some Departments require candidates to take the Language Examinations administered by the Educational Testing Service, Princeton. See Regulation 47.

f) Candidates are expected to take at least one language examination in the first year of the Ph.D. course (Ph.D. I or Master's I) and the other not later than the second year (Ph.D. II). Sessional inscription forms (Regulation 32b) must indicate the student's intentions in this respect. Students admitted to the second year of the Ph.D. course (Regulation 19) must discharge their language requirements as early as possible. Registration forms which do not comply with these requirements may be rejected.

g) The Department of German offers a course open to candidates for the Ph.D. degree and designed to help them to acquire the necessary reading knowledge of the language: two hours per week. A similar course is offered in Russian and in French. (See the entries of these three departments in this announcement, Section C.)

Thesis

26. a) The thesis for the Ph.D. degree must display original scholarship expressed in satisfactory literary from and be a distinct contribution to knowledge. The subject of this thesis must have been approved, in writing, by the Chairman of the Department in which the major subject is taken, at least twelve months before the date of the final examination; the exact title may be decided later (Paragraph 57 (5)). In both instances, the candidate is responsible for seeing that this information is conveyed in writing to the Dean's Office.

b) Five copies of the thesis must be provided by the candidate. Of these, two copies will be retained by the University and three copies returned to the candidate. (Some Departments may require one or more additional copies.)

c) The regulations concerning theses are stated in Paragraph 57.

Special regulations for the Ph.D. degree in particular departments are stated in the entries of these departments.

27. **Oral Examination.** After the thesis has been received and approved, a final oral examination on the subject of the thesis and subjects more intimately related to it is held. This is conducted in the presence of a Committee of at least five members approved by the Dean of the Faculty on behalf of the Executive Committee, and presided over by him or by a Prodean nominated by him. The Chairman of the candidate's department and his Director of Studies are regularly invited to be members of the Committee; one member of the Committee is appointed from outside the candidate's department.

3.3 COURSES AT MACDONALD COLLEGE

28. a) Graduate students who are taking the major part of their work at Macdonald College may go into residence there and may take, when required, other graduate courses given at the Montreal Campus.

b) Students wishing to reside in Macdonald College should send in their application for accommodation to the Registrar, Macdonald College, Que., as soon as possible.

c) Any fees in connection with courses taken at Macdonald College are payable through the Secretary of Macdonald College.

3.4 CLASSES OF STUDENTS

29. a) Those admitted to the Faculty as regular students studying for a higher degree or diploma are termed "graduate students."

b) Some students, whose academic degrees and standing entitle them to serious consideration for admission to graduate studies but who are considered inadequately prepared in the subject selected may, with the permission of the department concerned, and of the Dean be admitted to one *"Qualifying Year"*. The courses to be taken in a *"Qualifying Year"* will be prescribed by the department concerned. "Qualifying students" are registered in the Graduate Faculty, *but not as candidates for a degree*. Only one qualifying year is permitted. In cases where a department recommends

a change of registration from "Qualifying Year" to "Master's Degree 1st Year" this change must be implemented prior to January 15. For registration procedure, see Regulations 32 b) and c); for fees, see Regulation 33 a). Completion of the work of the qualifying year does not automatically entitle the student to proceed towards a degree. Students who are ineligible for a qualifying year may apply to the appropriate undergraduate faculty for admission as regular or partial students, and seek admission to the Graduate Faculty at a later date.

c) Qualified students who are permitted to take one or at most two courses in the Graduate Faculty, without intention of proceeding to a degree or diploma awarded by this Faculty, are termed "partial students of the Graduate Faculty". In the same category are included students carrying on research in McGill laboratories, without intention of proceeding to a degree. For fees see Regulation 33. If graduate "partial students" subsequently become candidates for higher degrees, they will normally receive academic credit and sometimes deduction of fees for relevant graduate courses taken as partial students. Students who wish to take further undergraduate courses only, should register as "partial students" in the undergraduate faculty concerned, even if they already hold degrees.

d) "Resident students" are those who in any given session are attending classes or receiving regular guidance or consultation from any member of the staff, or who wish to write preliminary or comprehensive examinations, or who are making use of the university's libraries or laboratories or other facilities, either on a full-time or half-time basis; for "non-resident students" see Regulations 32 b), e), 35 and 39.

e) Regular graduate students, except those in the Faculty of Education, taking evening courses required for their degrees *must* register also with the Continuing Education Department, though one fee covers both.

f) Internes, residents and fellows on the staffs of teaching hospitals, associated with the University, and candidates for diplomas in anaesthesia, clinical psychology, neurology, neurosurgery, radiology and urology, enrol as students in the Graduate Faculty.

g) Full-time lecturers can only enrol as half-time students.

3.5 ADMISSION

30. Advanced courses of instruction are offered to students who are graduates of any university of recognized standing, and who have at least second class honours, or the equivalent of at least second class honours as granted by McGill University, in the subject in which they desire to take their major work. This implies a standing in the upper half of the undergraduate class, at least, and a considerable amount of specialization, for example 36 semester hours of lectures in the subject selected. Admission to these advanced courses does not in itself imply candidacy for a higher degree or diploma. Every student admitted to the Faculty is, however, attached to one or other of the departments thereof, which is primarily responsible for guiding his studies.

This Faculty subscribes to the resolution recently passed by the Canadian Association of Graduate Schools and does not favour the pass/fail system of grading as a means of entrance.

31. The attention of applicants for admission to the Faculty is directed to the Graduate Record Examination (Education Testing Service, Princeton, N.J. 08540). This examination consists of a relatively advanced test in the candidate's specialty, and a general test of his attainments in the several basic fields of knowledge, for which no special preparation is required or recommended. It is offered at many centres, including Montreal, several times a year; the entire examination occupies some eight hours, and the total fee does not exceed $15.00. Applicants to the Graduate School of Business must submit scores on the Admission Tests for Graduate Studies in Business. Only some departments uniformly require applicants to write the examination, but applicants to any department who have written it should submit their records therein. This credential is of special importance in the case of applicants whose education has been interrupted, or has not led directly towards graduate study in the subject selected. In such cases the department has the right to insist on a report from the Graduate Record Examination or some similar test. High standing in this examination will not by itself guarantee admission. The Miller Analogies Test may be used similarly. Some departments of the Faculty of Education also demand the taking of various tests.

In cases of doubt as to proficiency in English, an applicant may be required to submit the results of tests administered by the Educational Testing Service.

3.6 APPLICATION, REGISTRATION

32. a) Applications for admission should be made on special printed forms which may be obtained at the Dean's Office. Applicants (with some exceptions) who are *not* McGill graduates are required to ask two instructors familiar with their work to send letters of recommendation to the Dean. All applicants must themselves send, or ask the appropriate university authorities to send, two certified copies of their complete university-level academic record to date. For McGill graduates the appropriate authority is the Registrar.

Note: A fee of $15.00 in Canadian funds *must* accompany each application from a graduate of a university other than McGill, otherwise *it cannot be considered.* This sum must be in negotiable form, such as a bank draft or money order (but not in cash), at the current rate of exchange, and will not be refunded.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. The applicant should also indicate the branch of the major subject in which further training is desired. Completed applications, with supporting documents, should reach the Dean's Office on or before July 3. (Note: *Several Departments set much earlier deadlines.)* Applications received after the prescribed date may not be considered unless this concession is recommended by the Department concerned. A late fee of $10.00 will be imposed. Candidates will be notified of acceptance or rejection as speedily as possible.

The program leading to the M.A. degree in Education normally begins with a Summer School, so that there are different dates for application and registration in this case. Candidates for higher degrees in Education should consult that Faculty beforehand as to application deadlines, date of commencement of courses and other details.

b) Approved candidates must consult the department or departments in which they intend to study, with regard to choice of courses and subject of investigation. Formal application for permission to attend the courses elected, and for approval of the subject of investigation, must then be made on the appropriate Registration Forms obtainable in the department. Language examinations (Regulation 25) should be entered on these forms, if required. These forms require the signature of the candidate, of the chairman or chairmen of the departments concerned, and of the professor appointed to act as director of the candidate's research or supervisor of his thesis, and are normally completed in consultation with the department; students are warned that it may take a week to arrange and complete such consultations. Registration takes place in September. The department may send the completed forms to the Dean's Office at any time but certainly not later than September 21. Full instructions concerning registration will be supplied by each department. A delay in registration will involve a late fee penalty. Candidates should in any case be prepared to attend the regular courses of instruction, which begin on or shortly after September 20.

The registration of "non-resident graduate students" *must* be completed before January 15 of the current session. Any changes of course requirements or registration must be implemented before January 15, with the approval of the chairman of the department and the Dean's Office.

c) The Registration Forms will be scrutinized by the Dean on behalf of the Executive Committee of the Faculty, and if approval is given one copy will be returned to the candidate. When he completes registration he will at the same time be told what fees to pay. The student may meanwhile attend lectures, etc., on the assumption that his registration will be approved, but will not be given credit for attendance until final approval has been given. "Resident students" must register between September 7 and 21 inclusive. The prescribed penalty for late registration is $10 on the first day of the late registration, that date to be determined by the Registrar's Office, and $25 thereafter. Students may pay their fees in two instalments. However, a first payment must be made within ten days of the date of registration. There is a penalty for late payment of fees.

d) Candidates whose studies extend over more than one year must register as above, at the commencement of each year of their program; if they have not so registered at the beginning of the academic year, *they are not eligible* to receive their degrees at the following Convocations. This applies also to non-resident candidates or candidates working at another institution (see Paragraph 18c).

c) Candidates who have completed their courses and their residence requirement but have not yet completed their thesis must enrol with the Dean's Office by registration through their department at the beginning of each session, and pay a tuition fee of $162.00, if resident, or a registration fee of $15.00, if non-resident.

Students whose sole further requirement is the writing of Ph.D. Language Examinations, are permitted to register as "non-resident".

Candidates, who, through failure to register as above, have severed their connection with the University can be reinstated only (1) if the department concerned so recommends, in writing, suggesting the imposition of such conditions as seem desirable, and (2) after paying a fee of $15.00 for each session during which they were not registered, such re-admission fees not to include the fee for the session for which readmission may be granted and not to exceed a total of $60.00.

By annual registration, as above, candidates may maintain their connection with the University **for five years** after completing their course and residence requirements; thereafter, they may re-register only if the department concerned so recommends, in writing, suggesting the imposition of such conditions as may seem desirable. The object of this regulation is to encourage candidates to complete their theses and qualify for their degrees without undue delay.

f) In some departments, it is possible to admit selected candidates at unusual times, for example at the beginning of the second term. In such an event registration *must* be completed by January 15.

g) Regulations concerning application and registration for the Diplomas awarded by this Faculty will be found in Paragraph 3 above.

h) Students registered in the Graduate Faculty who are taking evening courses for credit must also be registered with the Continuing Education Department; otherwise their marks will not be sent to the Graduate Faculty. Where an extension course is entered on a graduate student's registration forms as a prescribed part of his degree requirements, no additional fee will be charged to the student.

3.7 FEES, PREMIUMS, DUES

3.7.1 TUITION FEES

The University reserves the right to change any fee without notice. No degree or diploma will be granted until all fees are paid in full.

33. a) The inclusive fee for a *full time session of resident study* (e.g. a Qualifying Year, the required year for the Master's degree (for exception see below), the first required year for the M.Sc. (Applied) degree or each of the three required years for a doctoral degree) is $652.00.

The fee per session in the M.B.A. program is $717.00.

The fee for the Second year of the M.Sc. (Applied), M.Eng. (Mining) and of the M.L.S. programs is $312.00. (See Special Note, Section G 10.)

The fee per session in the M.Sc. (Applied) Psychology program is $362.00.

For fees for degrees in Education see Regulation G.

b) The inclusive fee for a *half-session of full-time study* or for a *session of half-time study* (see Regulation 55) is $371.00.

c) The fee for an *additional session of resident study,* beyond the required year for the Master's degree or the three required years for a doctoral degree, for students in good standing, *whether full-time or half-time,* is $162.00

d) Full-time lecturers (and in exceptional cases other members of the academic staff of the University) may apply through the chairman of their department to be allowed to pay the

special staff fee. Full-time members of the library service staff may apply through the Director of Libraries to be allowed to pay the special staff fee for the M.L.S. degree.

34. The above fees for resident students are inclusive, and cover tuition, graduation, the use of laboratories and libraries, the health service and athletic privileges, and membership in the Students' Societies. There is no additional charge for the use of such university facilities as may be available in the summer following the academic session. Additional fees are however charged as set forth below, for special and supplemental examinations, for the re-examination of revised theses, for the repetition of uncompleted courses, and for late registration, etc.

Any student using the facilities of the University, e.g. taking a lecture course, or doing laboratory work, or receiving regular guidance or consultation from any member of the staff, or who wishes to write preliminary or comprehensive examinations, is considered to be in residence. He must register and pay fees as above. For payment by instalments, see Regulation 50.

35. French Summer School students, who wish to proceed to the M.A. degree, must take a preliminary summer session, followed by four (with thesis) or five (without thesis) summer sessions. In exceptional circumstances a student may be exempted from the preliminary session. At the successful completion of the second regular session, all students are required to apply for and obtain admission to the Faculty of Graduate Studies (see Paragraph 32a). They are to register formally therein (Paragraphs 32b, c, d) at a time and place to be announced. Fees for the preliminary session and for each of the four following sessions are $25.00 deposit plus $275.00 for Canadian students, $25.00 deposit plus $325.00 for non-Canadian students. These include participation in the cultural and social activities of the School. Fees for the sixth session (required of candidates proceeding without thesis) are $130 for Canadian students, $160 for non-Canadian. If the submission of a thesis is delayed beyond the normal date, the candidate must pay an additional registration fee of $15 at the beginning of each session until the thesis has been accepted.

36. The normal fee for "partial students of the Graduate Faculty" as defined in Paragraph 29c is $200.00 per full course; special fees may be required for certain laboratory courses. A partial student carrying on research in McGill laboratories, but not taking courses, will normally pay $162.00 per session.

3.7.2 REGISTRATION AND GRADUATION FEES

37. The registration fee for a *session not spent in residence* (see Paragraphs 29d, 32c and 39) is $15.00.

The additional fee for a degree conferred *in absentia* is $5.00.

38. A candidate permitted to spend one year of his program at an approved institution elsewhere (see Paragraph 18c) must enrol at the Dean's Office, then register with the Registrar's Office at McGill as a non-resident student, and pay a fee of $15.00.

39. a) A student who has completed his courses and his residence requirement but has not completed his thesis must enrol at the Dean's Office, then register with the Registrar's Office, and pay a registration fee of either $162.00 or $15.00 at the beginning of each session until his thesis has been accepted (see Paragraph 32e) *A student who pays the fee of $15.00 is not considered to be in residence, and this fee does not give the student access to any of the laboratories, nor health and athletic privileges, nor membership in the Students' Societies.*

b) Registration is also required when a student has completed all requirements except for one or more examinations. The fee in this case will be $15.00 (non-resident) or $162.00 (resident), in addition to any fees due for special examinations (Regulations 46 and 47).

40. A $25.00 registration and graduation fee is charged of students receiving the diplomas in Engineering, after tuition in the Continuing Education Department.

3.7.3 ADDITIONAL FEES

4.1 All resident graduate students, except partials, are entitled to the same health and athletic privileges as undergraduates, without additional fee:

a) Medical examination (compulsory); daily consultation service and hospital treatment.

b) Access to the gymnasium, swimming pool, and tennis courts (additional fee for summer vacation).

c) Opportunities for exercise with various athletic clubs and eligibility for intercollegiate and other teams.

d) Admission (by identity card) to the students' section at all intercollegiate games played at McGill.

e) At Macdonald College slightly different rules apply, see also Regulation 42.

42. At Macdonald College, graduate students are entitled to medical attendance, major operations excepted, on the same basis as other students. Graduate students at Macdonald College are entitled to participate in the activities of the various organizations under the Students' Council and to have one representative on the Students' Council. Graduate students at Macdonald College are required to pay an additional Students' Activities Fee.

43. **Notice to all resident students and to all those accepted to enter the Faculty WHO ARE NOT CANADIAN CITIZENS:**

In the Province of Quebec, immigrants and holders of student visas cannot establish legal residence in the Province and therefore do not qualify for inclusion in the Quebec Health Insurance Plan. As a result such students who need hospitalization may find themselves facing very heavy financial charges. Senate has therefore ruled that from September 1, 1967, all non-Canadian students (including landed immigrants during their first three months in Canada) will be required to enter into the Health Insurance Plan operated by the Canadian Premier Life Insurance Company.

The premium will be collected by the University at the time of payment of the first tuition fee instalment and for foreign students annually thereafter.

A descriptive leaflet is available from the Dean's Office. For additional information apply to the office of the Insurance Company.

Post-doctoral Fellows registered with the University also come under the same insurance provisions.

44. A candidate whose thesis is judged unsatisfactory by the examiners may be permitted by the Faculty to present a revised thesis once again, for a subsequent Convocation, upon payment of the following re-examination fees:

Master's degree ..... $ 75.00
Doctoral degree $100.00

A registration fee of $15.00 (see Regulation 39) is also payable if a new session of non-resident study is entered; if the student remains in residence for an additional session, the fee of $162.00 (see Paragraph 33c) will be charged as a tuition fee in addition to the re-examination fee.

45. A staff candidate on deposition of a thesis is required to pay a thesis-examination fee in the amount of $75.00 for a Master's thesis and $100.00 for a Ph.D. thesis.

46. Fees for supplemental examinations, granted under special circumstances by permission of the Dean on the recommendation of the department, are payable in advance at $10.00 per paper. A student who has failed in any required course and has not received permission to attempt a supplemental examination will be required to withdraw. Only under exceptional circumstances may permission be granted by the Dean, on the recommendation of the department, for the student to repeat any such course. In such a case the student may be required to pay the fee charged to partial students for the course in question (see Regulation 36) in addition to fees applicable under Regulations 33 and 44, but does not pay for supplemental examinations.

47. There is no fee for the language examinations for Ph.D. candidates (see Regulation 25) when these are first taken. A fee of $5.00 is charged, however, when these examinations are retaken after a previous failure. If, however, a department elects to require its candidates for degrees to take the language tests of the Educational Testing Service, Princeton, the candidate must himself meet the costs involved.

48. All resident students in the Faculty of Graduate Studies and Research are members of the relevant Students' Societies. The University, on behalf of these societies, collects $29.50 as annual dues ($44.00 for Macdonald College students).

3.7.4 **PAYMENT**

49. All fees are payable in Canadian currency.

50. Fees are due and payable at the Cashier's Office, Administration Building, within ten days of registration day. If paid in instalments the second is due on January 15 (see Regulation 52).

51. Immediately after October 23 a list of students who have not paid their fees is sent to the Dean of the Faculty, who removes their names from the register of attendance. Such students cannot be re-admitted to any class until instructions have been received from the Chief Accountant that the fees have been paid.

52. Late fees are also charged as follows:

Application, after July 3	$10.00
Registration, after September 22	$25.00
Payment of fees, after 10 days after registration, up to 30 days	$10.00
Payment of fees, after 30 days	$25.00

3.8 FELLOWSHIPS, SCHOLARSHIPS, AND PRIZES

53. Details of fellowships, scholarships, prizes, and loan funds available for graduate students will be found in the Booklet entitled "Postgraduate Awards, Fellowships and Bursaries", obtainable from the Registrar. In this booklet can also be found a list of the various cultural exchange programs providing scholarships to students wishing to pursue their studies abroad. Information pertaining to these and application forms can be obtained from the Cultural Exchange Service of the Graduate Faculty.

Fellowships open to graduate students fall into three groups. Some are awarded by institutions or bodies other than McGill, which have their own regulations and their own application forms, obtainable from them. Secondly, there are those for which application should be made to the Dean of the Graduate Faculty; application forms should be obtained from the Fellowships Office; and all of these applications should be completed by February 1. Thirdly, there are those for which application should be made to some other designated professor or official at McGill University; in most of these cases no form is required and a brief letter of application is sufficient.

The probability of foreign students obtaining financial aid from the Graduate Faculty in the first year of enrolment is small.

Application *by Canadian students* for a fellowship and financial aid in general should be made on forms obtainable from the Fellowships Office and preceded or accompanied by an application for admission to this Faculty (unless the candidate is already a student therein), accompanied by the usual supporting documents such as transcripts and letters of recommendation. The awarding committees will base their nominations upon these documents, and will announce their awards on April 1. As far as possible each applicant will be considered for every award for which he is eligible. It is perfectly in order for a student to apply for admission to the Faculty with the proviso that admission cannot be accepted unless financial aid can also be made available. Such a proviso does not obligate the University in any way.

Applicants for fellowships and scholarships should note that these are awarded on a competitive basis, in the light of established academic merit.

Application by *non-Canadian students* for fellowships and financial aid should be made directly to the departments in which they plan to study.

3.9 DEMONSTRATORSHIPS AND ASSISTANTSHIPS

54. Most of the departments which offer laboratory courses require the services of some graduate students as demonstrators. These may be employed up to 12 hours weekly during the session without losing status as full-time graduate students.

Some of these departments are also able to pay graduate students as Research Assistants from special research funds, and in most, though not all, cases the research in question can be used by the student for his thesis. Some of the departments in the humanities and social sciences are able to employ graduate students as Teaching Assistants. In all

cases the appointment is recommended by the Chairman of the department concerned on the basis of the documents supplied along with the applications for admission. Applicants should submit the forms requesting financial aid which are available from the Dean's Office and these will be sent to the department concerned.

It is not the policy of the University to waive tuition or other fees for Demonstrators, Assistants, or Fellows, though in some cases a fellowship may consist of a basic stipend plus the amount of the fees, while certain graduate scholarships cover the cost of fees only. Generally speaking, demonstratorships and fellowships provide subsistence throughout the academic session only, while research assistantships may run throughout the calendar year (through some are available in the summer months only); in no case are the funds adequate to defray any part of the cost of coming from of returning to a distant country.

4 GENERAL RULES CONCERNING HIGHER DEGREES

55. a) A graduate student is expected to devote his full time to his courses, reading, and research in each session counted towards completion of residence requirements. Members of the teaching staff of the University who are also students in the Graduate Faculty an who give more than three hours of lectures or six hours of conference work or twelve hours of supervisory work in laboratories and allied services per week, and other students doing an equivalent amount of additional work inside or outside the University, may not obtain the Master's degree in one year, and will require at least four years for the Ph.D. degree. At least one of the years required for either degree must be spread over two sessions, in each of which such students will be registered as *half-time* students and will pay a fee of $371.00.

b) No full-time students registered in any professional faculty of the University may also register for a graduate degree or for a qualifying year without the special written permission of both faculties, and such permission must be presented at registration.

c) A research degree is granted in the Faculty of Graduate Studies essentially for work in one subject, known as the student's *major subject*. Certain allied or "cognate" courses in other subjects may be permitted or required; these must be entered on the Registration Form, which must show whether the courses are to be taken for credit, including examination, or merely attended, and which must be signed by the chairman of the departments concerned.

d) No specified number of course credits is required for research degrees. The department concerned will examine the applicant's previous training, undergraduate and graduate, and then decide how many of the available courses in the major subject and related fields are required to bring the candidate to the proper level for the master's or doctoral degrees. Due account will be taken of all relevant courses passed at any recognized university or college.

e) Non-research degrees, which are generally of an applied or professional character, normally specify the course program which the candidate must follow.

f) A candidate with a given higher degree may be permitted to proceed to a second degree of the same kind, *but in another subject,* provided that the usual requirements for the degree are entirely fulfilled and approved as usual by the department concerned. In the computation of fees for such a second degree, no account will be taken of the student's previous registration in the Graduate Faculty.

g) Programs of work towards higher degrees in inter-disciplinary fields may be undertaken by special arrangement. All such programs must be submitted to the Dean for approval.

h) Students should note that the above rules apply to the Faculty as a whole; a department may have additional rules of its own.

4.1 MARKS

56. Classification of marks: 100-80% First Class; 79-65% Second Class; Below 65% Failure.

Some departments evaluate performance (in seminars only) by the grades: Pass, Fail.

Students who obtain marks between 55 and 64% in courses not required for the degree sought may, on recommendation of the major department, be recorded as having "passed at the undergraduate level."

Students who have failed in required examinations are permitted to write supplemental examinations only on the recommendation of the major department and with the permission of the Dean (see Regulation 46).

Students qualifying for admission will be expected to obtain 65% or better in all courses

Transcripts can be obtained on application to the Transcript Office, Administration Building (in respect to "day courses") or to the Centre for Continuing Education, 772 Sherbrooke St. West (in respect to "evening courses"). A fee will be charged.

4.2 REGULATIONS CONCERNING THESES

4.2.1 DATES OF DEPOSITION

57. For graduation at the spring convocation the deadline for deposition of theses is near the end of March, for all convocation near the end of August. For the exact dates, the "Calendar of Dates" should be consulted. The deadlines for doctoral theses are one week earlier than those for master's theses.

Due to unforeseen delays with examiners, an absolute guarantee cannot be given that all procedures will be complete in time for Convocation, even where the deadlines are met. Every effort will be made, however, and incidents of this kind of delay are rare.

4.2.2 PROCEDURES AFTER DEPOSITION

After a *doctoral* thesis has been handed in, it is submitted to the Examiners. The final oral examination is not held until after the Examiners have reported favourably, usually about four weeks after deposition. After all the requirements have been met, and if the next convocation is some time away, the Dean will issue (on request) a certificate stating that the candidate will be recommended to Faculty for the award of the degree at the next convocation.

Guidelines for the disposition of Examiners' reports and the organisation and conduct of Oral Examinations are attached. At any stage during the procedures, candidates have the right of appeal to the Dean or Associate Dean.

The procedures are similar but simpler for the *master's* thesis and there is no final Oral Examination.

*excerpted, with some additions, from the Faculty Announcement, Section 4.2.

4.2.3 REGISTRATION AND FEES

A thesis can only be submitted by a candidate, i.e. a student registered for the degree in question. In order to remain a candidate, a student must remain registered. If all requirements are met, including deposition of the thesis by the registration date in September, then no fee will be charged. Otherwise either $15.00 (non-resident) or the appropriate resident fee will be assessed. Candidates should note also that a fee of $5.00 for graduation *in absentia* will be charged. (Fuller information about fees is given in the Calendar.)

4.2.4 NOTICE OF DEPOSITION OF THESIS

Formal notice of the title of a thesis to be deposited must be filed in the Dean's office by 1 June (for all convocation) or by 1 February (for spring convocation). No subsequent change of title, whether originated by the candidate or any other source, will be accepted unless the change is officially requested by the Department, at least one month before the thesis is deposited. The notice should be the result of consultation between the candidate, the thesis

supervisor and the department. All three share the responsibility for the prompt completion of this important formality.

By the same notice, the Department must nominate Examiners. The appointment of the Examiners, and communication with them, is the duty and the privilege of the Dean.

4.2.5 ORIGINALITY AND HISTORICAL INTRODUCTION

(a) The candidate should clearly indicate in the preface, or by a separate statement at the beginning or end of the thesis, what elements in the thesis he considers to be contributions to original knowledge. This requirement is mandatory for a doctoral thesis and is recommended in other cases. Theses should also contain an appropriate historical statement of previous relevant work or investigation; "appropriate" does *not* necessarily mean long or exhaustive.

(b) The thesis may be typed with double, or one and one-half spacing, with lines about 6½ inches wide, or in two single spaced parallel columns. Copy I must be on 20-lb. weight high quality paper. Other copies must be on paper of equal quality, but 16-lb. weight will be accepted. (The University Bookstore stocks the above grades of paper.) Offset or xerographic reproduction of all copies is permissible, but copies 1 and 2 especially must be of high quality. Coated paper will not be accepted.

4.2.6 TYPOGRAPHICAL AND OTHER SPECIFICATIONS

Approved theses for higher degrees are later bound and placed in the Library and are made available to the National Library of Canada. Candidates for such degrees are therefore advised that the Faculty of Graduate Studies and Research requires theses to be prepared in accordance with the following specifications. *Theses not so prepared will not be accepted unless the Executive Committee of Council has given its agreement in advance.*

(a) Three copies of a master's thesis and five copies of a doctoral thesis must be submitted; in each instance two of these will be retained by the University. Copy I will be preserved in the University Library.

Departments desiring copies for other collections should arrange for these with the candidate. One copy of the master's thesis and three of a doctoral thesis will be returned to the candidate.

(b) The thesis may be typed with double, or one and one-half spacing, with lines about 6½ inches wide, or in two single spaced parallel columns. Copy I must be on 20-lb. weight high quality paper. Other copies must be on paper of equal quality, but 16-lb. weight will be accepted. (The University Bookstore stocks the above grades of paper.) Offset or xerographic reproduction of all copies is permissible, but copies 1 and 2 especially must be of high quality. Coated paper will not be accepted.

Diagrams should be drawn with India ink on rag paper or reproduced by photographic, offset or xerographic processes. Diagrams, numerical or summary tables, and parts of the Table of Contents, may appear on left-hand pages (on the back of other material) where this aids in the layout and the general readability of the text. In such cases it may be desirable not to number these left-hand pages, but to identify them as opposite stated page number.

(c) The left-hand margin must have a uniform width of not less than 1½ inches, this rule also applies to diagrams, etc. The right-hand margin need not be aligned but it should be well-defined at approximately a half-inch width. Drawings, maps, plates, etc., if larger than the prescribed page, may be folded so that the flap is not larger than 7 x 11 inches. Larger drawings, maps, etc., must be folded down to not more than 7 x 10 inches, so that they may be placed in pockets in the binding.

(d) Footnotes may be placed either at the bottom of each page or collected at the end of each chapter.

(e) The pages constituting each copy of the thesis should be assembled in approved binders. The pages should be perforated near the left-hand edge with two punch holes approximately 8½ inches between centres, and should then be assembled and firmly bound, by means of the holes, between stiff covers for protection. The 8½ x 11 "Acco-press" binders supplied by the University Bookstore are recommended. Spring binders will not be accepted. On the outside of each binder must be written clearly the name of the candidate, full title of thesis, department, degree sought, date and copy number. The candidate should also affix to the spine of each copy a label showing clearly his surname and the degree for which he is a candidate, together with the copy number.

(f) The thesis must be free from typographical and other errors. If copies are deficient in the above respects they will be returned for correction. If these corrections are very numerous the granting of the degree may be delayed on this account.

(g) Every thesis should have an adequate table of contents and a thorough bibliography of the subject. Immediately following the title page, there should be an Abstract, giving a summary of the thesis not exceeding 150 words. The rules above regarding format, margins, etc., should be observed with regard to the abstract. When the language of the thesis is English, a French version of the abstract is also required, and when the language is French, an English version is required; when the language of the thesis is neither English nor French, an English version is required and a French version is invited. It is understood that the thesis supervisor has approved the text of the abstract.

(h) The student has the option*, subject to the approval of the Department, of producing the thesis in the form of an original paper, or papers, suitable for submission to learned journals for publication. In this case the thesis must still conform to the requirements of sections 4.2.6 and 4.2.7. In such a case, a full introduction, and other material (e.g. experimental data or details of equipment and experimental design) may need to be provided in addition. If more than one manuscript is included, connecting text and joint summary-conclusions are required. A mere collection of manuscripts is not acceptable; nor can reprints of published papers be accepted. The present regulations (section 4.2.7 (h)) should be cited in the introduction.

(i) Candidates are warned that the preparation of the typescript always takes longer than is expected and that sufficient time for checking the typescript carefully for errors before the thesis is deposited must be allowed.

*This option is subject to review after a trial period, in 1973.

4.2.7 SUPPLEMENTARY DOCUMENTS

At the time of deposition of the thesis, the following additional documents must also be filed in the thesis office:

(a) Two waiver forms for the University Library; one for the National Library.

(b) On separate sheets of paper, a short title of the thesis, of less than 56 characters including spaces, which will appear along the spine of bound copies.

(c) Two additional copies of the Abstract, as described in 4.2.7 (f). These copies should show the title of the thesis, the name of the author, the name of the department and of the degree sought.

(d) For doctoral theses, the form required by Dissertation Abstracts, together with another copy of the Abstract and of the title page of the thesis.

Notes re:

(a) Unless there is a specific arrangement to the contrary previously approved by the Dean, copies of accepted theses are deposited in the University Library and a microfilm of the original is placed in the National Library at Ottawa. These Libraries are authorized to make the thesis available for consultation or to distribute microfilm or other copies. The waiver forms are to provide for this arrangement.

(c) These abstracts are bound into volumes which are filed for reference in the University Library and in the Faculty office.

The forms referred to in (a) and (d) can be obtained in the thesis office. Unless these documents accompany the thesis, it will not be accepted.

4.2.8 RESUBMISSION

If a thesis is failed it cannot be submitted again in revised form without the permission of Faculty Council. A fee of $75.00 is required for the resubmission of a Master's thesis and $100.00 for a Doctoral thesis. These fees partially cover the cost to the University of having the thesis re-examined. More details about resubmission procedures are contained in the *Guidelines* referred to in section 4.2.2.

5 LIBRARIES

58. All resident graduate students have access to the main collection, the McLennan Library, containing over 860,000 volumes. The building also houses a number of special collections, such as the Blacker Library of Zoology and the Blackader-Lauterman Library of Architecture and Art. Libraries of the Engineering, Law and Religious Studies Faculties are housed in their respective buildings. The Medical Library, located in the McIntyre Medical Sciences Building, includes much of the material for the medical sciences, and a separate room contains the Osler Library which is devoted principally to medical history. There are special libraries such as Macdonald College Library, Islamic Institute Library, and Libraries of the schools of Library Science, Social Work, Graduate Nurses and Commerce. The Allan Memorial Institute and the Montreal Neurological Institute both have associate libraries. A number of departments maintain special libraries. The most extensive are in Chemistry, Geology, and Physics grouped together in the Physical Sciences Centre, and in Botany located in the Stewart Biological Sciences Building.

All university collections may be consulted by resident graduate students, though the hours for reading and the conditions under which books may be consulted or borrowed are not the same in all cases.

6 RESEARCH
POLICY, PATENTS, FELLOWS, ASSOCIATES

6.1 RESEARCH POLICY STATEMENT

59. a) McGill University recognizes that one of the main purposes of University Research is the discovery and dissemination of new knowledge. Research, therefore, which is pursued under conditions which preclude normal publication, is not generally compatible with University practice.

b) When a faculty member proposes to apply for a research grant or contract which prohibits publication of the results, or entails security clearance for any faculty member or student involved, and when such research is to be conducted under the auspices or using the facilities of McGill University, the Dean of the Faculty of Graduate Studies and Research, before signing such an application on behalf of the Principal, shall refer it to the Executive Committee of the Faculty for its approval.

c) The Dean shall inform Faculty at the May meeting each year of the number of such proposals approved by the Committee.

d) All research theses accepted in partial fulfilment of degree requirements shall be accessible in the University Library unless the Executive Committee shall have voted that a particular thesis should not be generally available.

6.2 PATENTS

6.2.1 UNIVERSITY PATENT POLICY

6.2.1.1 Principles and Objectives

60. (1) The University recognizes as a fundamental principle that it should maintain complete freedom of research and the unrestricted dissemination of information. Research done solely in anticipation of profit is incompatible with the aims of the University. Nevertheless it is recognized that in the course of its research activities ideas or processes may be developed on which, in the public interest, patents should be sought. The University and the inventor have a responsibility to promote the effective development and utilization of such

discoveries, and to insure that they will not be restricted in their use in a way which is detrimental to the public interest.

(2) It is also recognized that the effective development of patents based on their research activities have occasionally provided Universities with revenues which have made possible the encouragement of further research both in the field in which the patent was developed and in the University as a whole.

6.2.1.2 Rights of the University, the Inventor, and Supporting Agencies

(1) The University affirms its interest in all patentable discoveries of inventions of members of its academic, technical or administrative staff, or by students registered in its Faculties, or by other personnel engaged in its teaching or investigative programs, which are made in the course of the performance of their duties within or without the University, or which are made possible by a measure of University support.

(2) The University affirms that it will provide recognition to inventors through a share in the proceeds from their inventions in the following ways:

i) The inventor and his academic associates will profit indirectly, through the allotment by the University of at least a portion of its income from the invention to their research programs.

ii) A modest fraction of the profit should be given to the inventor himself, in order to encourage him to bring his invention to the patentable stage and to patent it under the auspices of the University, and to provide him with a measure of direct reward that does not depend upon his continuing employment at the University.

iii) The desires of the inventor with respect to the use of any surplus of revenues derived from his patents will be considered.

(3) The University affirms the principle that revenues from patentable inventions should normally be devoted to the further support of research.

(4) Under the terms of certain contracts and agreements undertaken by the University on behalf of members of the University with various agencies of government or other supporting bodies, the University and the grantee may be required to assign patent rights too the granting or contracting agency. The University recognizes the equity of outside sponsors of research with respect to patentable discoveries made under such grants, and retains the right to enter into such agreements when they do not conflict with its basic objectives.

(5) Notwithstanding the above, the University does not consider that it has an interest in the exploitation of the work of members of the University undertaken in their capacity as consultants to outside bodies, nor in cases in which the invention results from the demonstrably private research of the University member.

(6) The University affirms that nothing in this policy statement has reference to revenue derived from royalties from copyrights on work which has been published.

(7) Acceptance of this policy is a condition of employment by the University, and of registration as a student, and of being accepted in any capacity in any University controlled laboratory or program, and it is understood that no member of the University will enter into any patent negotiations without informing the University in writing to the Dean of Graduate Studies and Research that he is doing so.

(8) Procedures for implementing this Policy are deposited with the Secretary of the Board of Governors and the Dean of the Faculty of Graduate Studies and Research, from whom copies may be obtained. Representations relating to this Policy and its implementation should be made to the Dean for the consideration of the University Patents Committee.

6.2.2 UNIVERSITY PATENT PROCEDURES

61. a) The evaluation and development of inventions and discoveries involves time, expense and specialized knowledge which the University cannot normally provide. It will therefore enter into non-exclusive agreements with outside bodies which provide these services, when the aims of these bodies are consistent with the University's objectives. In particular, such agreements will be negotiated with non-profit organizations specialized in this field such as Canadian Patents and Development Limited in Ottawa, and the Research Corporation in New York City.

b) A Patents Committee exists to implement the University's Patent Policy, as set out in the Statutes, to advise personnel on procedure for dealing with patent matters, and to act as

the University's agent in dealing with those bodies with which it has contracted for the exploitation of patents. The Committee consists of a chairman appointed by the Principal from the academic staff of the University, the Dean of the Faculty of Graduate Studies and Research or someone delegated by him to represent that Faculty, a member designated by the Board of Governors, and one other faculty member selected by the Executive Committee of the Grad-Faculty, a member designated by the Board of Governors is a member *ex officio* and the University Research Grants Officer acts as non-voting Secretary to the Committee. The inventor or a representative chosen by him, and the Dean of his Faculty, are also non-voting members of the Committee when it is considering a particular invention.

c) The University member shall notify the Dean of the Faculty of Graduate Studies and Research and through him the Patents Committee of any inventions or discoveries made by him in the course of his university duties which seem to him to be of a patentable nature. He shall, when required, submit to the Patents Committee all information needed for the evaluation of the discovery and the application for patent rights and give the University permission to disclose that information under such safeguards as the Patents Committee may determine to other qualified and interested persons.

d) The Patents Committee shall decide whether or not to submit any given invention or discovery to one of the agencies representing the patent interests of the University. If no action is taken on the part of the University within a period of six months, or such lesser period as the inventor may show is necessary to protect his rights, full title to the invention and to any revenue which may be subsequently derived from it will revert to the inventor who may proceed on his own account if he so desires.

e) In those cases in which the agency (such as Canadian Patents Development Limited or Research Corporation) to which the University, on the recommendation of its Patents Committee, has submitted an invention for development decides that it does not wish to proceed with a patent application the Committee may in consultation with the inventor, consult other technical experts for advice, to decide whether to recommend that the University undertake the patent application on its own initiative.

f) A faculty member, student or other person to whom these procedures may apply shall have the right to appeal to the Principal decisions of the Patents Committee which he considers unjust. In the instance where the matter at issue is whether the University has interest in the invention, the faculty member, student or other person shall accept the findings of an arbitrator acceptable to, and appointed by himself and the university, the cost of such arbitration being shared equally by the two parties to the arbitration. In the event that the University and the inventor fail to agree upon an arbitrator, within thirty days of a formal invitation to do so, either party may request the appointment of an arbitrator from the President of the Montreal Board of Trade who shall appoint the arbitrator forthwith.

g) The University's agreements with the corporations charged with developing its patents will follow the normal pattern of agreements made between these corporations and universities. The inventor or inventors shall normally receive 15% of the gross proceeds of the invention; the remainder, after deduction of all expenses involved in the invention's being patented, will be divided between the University and the Corporation. In the case in which there is more than one inventor, the distribution of the inventors' share shall be made on the recommendation of the co-inventors or, in the absence of such a recommendation, by the Patents Committee. The University's share shall normally be devoted to the support of research, special recognition being given to the laboratory, department or faculty in which the discovery was made. In general, at least one-half of the University's share shall be so allocated, provided that such a distribution is consistent with general University budgetary policies. The proportion may, however, vary with the magnitude of the benefit derived from the patent.

h) If an invention that appears to be patentable is made by a student registered in the University and using University facilities, he shall in consultation with his Director or the Chairman of his department submit it to the Patents Committee for consideration. His submission will then be dealt with in the same way as applications by staff members.

6.3 POST-DOCTORAL FELLOWS

62. Post-doctoral fellows are junior Ph.D. graduates engaged by a member of the university's academic staff to assist him in his research. Medical post-doctoral fellows possess the M.D. degree. Post-doctoral fellows may register with the Faculty through the Dean's Office (or in the case of medical post-doctoral fellows, through the Office of the Dean of Medicine) and receive thereby a university identity card, library and other staff privileges. They thereby become liable to the provisions of the Health Insurance Plan (see Regulation 43).

6.4 RESEARCH ASSOCIATES

63. This title is intended to provide recognition and status on the University records for senior investigators who are neither candidates for a degree nor members of the regular teaching staff of McGill University, but are attached temporarily to a department because their assistance is required in the interests of a current programme of research.

A Research Associate will normally hold the Ph.D. degree or an equivalent qualification.

Any grant which a Research Associate may receive must be either from McGill University or from some other institution promoting the advancement of learning, and must be paid solely for the furtherance of the research that he is pursuing and not for instruction or demonstration. A Research Associate may, however, with the permission of the Faculty, act as a director of research for graduate students associated with him.

6.5 OFFICE OF INDUSTRIAL RESEARCH

The Office of Industrial Research, an organization supported by the Federal Government, exists to promote interactions and to negotiate research contracts between industry and the University.

Macdonald College

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "A" AGRICULTURAL AND ALLIED SCIENCES

1973-74

NOTE: Courses, marked with an asterisk (*), are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Fall and Spring term course

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A 1 DEPARTMENT OF AGRICULTURAL CHEMISTRY

The Department works in liaison with the Department of Agricultural Physics and the Department of Soil Science, Macdonald College.

A1.1 STAFF

Professors — B. E. BAKER *(Chairman)*; R. H. COMMON
Associate Professors — P. A. ANASTASSIADIS; G. O. HENNEBERRY

A1.2 REQUIREMENTS

A1.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

(1) Candidates are required to have the B.Sc.(Agr.) degree with honours standing, or an equivalent qualification. Students holding a B.Sc. degree may be accepted if they have appropriate undergraduate work in chemistry with sufficient biology; otherwise a qualifying year will be required.

(2) Candidates for the M.Sc. degree are required to take the examinations in two courses for higher degrees given in the Department.

(3) Candidates may be required to take the examination in one of the cognate courses listed below:

At Macdonald College

Either Statistical Methods (Department of Agronomy 360-610A and 340-610B) *or* Isotopic Tracer Techniques (Department of Agricultural Physics 338-602B) *or* Animal Physiology 342-650D *or* Reproductive Physiology 342-322A, *or* a recommended course in Computer Science.

At McGill University in Montreal

Organic Chemistry (Department of Chemistry 180-342A).
Biopolymers (Department of Chemistry 180-404B).

(4) Candidates are required to complete an acceptable research project and to submit an acceptable thesis on their research.

A1.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates will be judged principally by their ability in research. Course work will be arranged with other departments at Macdonald College to meet individual needs. Special arrangements for course work may be made with the McGill Departments of Chemistry, Biochemistry and Experimental Medicine. Candidates should normally be prepared to take the Comprehensive Preliminary Examination by the end of the first year in which they are candidates for the Ph.D. degree. Candidates are required to pass an examination in translation from French into English (126-790D). Candidates *may* be required to pass a similar examination in a second language.

A1.3 COURSES FOR HIGHER DEGREES

332-651A and 332-652B. FOOD ANALYSIS. (2 lectures and one lab. period, both terms.)
PROFESSORS COMMON AND ANASTASSIADIS

332-663B. INDUSTRIAL UTILIZATION OF FARM PRODUCTS. (2 lectures, second term.)
PROFESSORS BAKER, COMMON AND ANASTASSIADIS

332-664D. GRADUATE SEMINAR. (1 hour) STAFF

332-700D. COMPREHENSIVE PRELIMINARY EXAMINATION. (See paragraph 23 of Faculty Regulations.)

A 2 DEPARTMENT OF AGRICULTURAL ENGINEERING

The Department offers facilities for research work in the areas of water control, agricultural structures, plant and animal environment engineering, properties of agricultural products, agricultural waste management, and agricultural machinery leading to the degrees of Master of Science and Doctor of Philosophy.

The Brace Research Institute is associated with the Department, and laboratories and technical facilities are used in common by staff and students. Research on desalination and utilization of wind and solar energy continues both at Macdonald College and at field locations in the Caribbean. Further information about the Brace Research Institute is located in Section "E" of the Graduate Faculty Announcement. Students working on Brace Research Institute projects may register for their advanced degree in the Agricultural Engineering Department.

Candidates for M.Sc. and Ph.D. degrees should indicate in some detail their fields of special interest when making application for admission.

A2.1 STAFF

Associate Professors — J. R. OGILVIE *(Chairman);* R. S. BROUGHTON
Assistant Professors — E. R. NORRIS; E. McKYES; A. MARQUIS
Sessional Lecturer — M. A. S. MALIK
Associate Member — T. A. LAWAND *(Brace Research Institute)*

A2.2 REQUIREMENTS

A2.2.1 LANGUAGE REQUIREMENTS

Fluency in one of the official Canadian languages and a reading ability in the other is a requirement for an advanced degree. This requirement will be waived for non-Canadian students who can demonstrate a fluency in one of the official Canadian languages and a reading ability in any other language in which there is significant literature in their field of research. The two official languages in Canada are English and French. Suitable courses are available on both campuses.

A2.2.2 REQUIREMENTS FOR THE M.Sc. DEGREE

The program for candidates for the M.Sc. degree will be developed in consultation with the candidate's research director and will normally include a minimum of eight term courses plus a thesis submitted in accordance with the rules of the Faculty. Courses will be selected from those offered in the Agricultural Engineering Department and those in such other departments as Agronomy, Animal Science, Brace Research Institute, Civil Engineering, Mathematics, Mechanical Engineering, Soil Science and Economics.

A2.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

(1) Candidates for the Ph.D. degree will normally register for the M.Sc. degree in the first instance. In cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Sc. degree has been completed at another university, candidates may be permitted to proceed directly to the Ph.D. degree.

(2) Courses of study selected for a Ph.D. program will depend on the existing academic qualifications of the candidate and on those needed for effective prosecution of research. Candidates are encouraged to undertake an additional course of study of

their own choice in some field of the humanities, sciences or engineering not directly related to their research. The program will be established by consultation of the candidate with a committee that will include his research director and at least one other professor. Normally from six to twelve term courses will be required beyond the M.Sc. degree.

(3) Students who take their B.Sc. and M.Sc. at McGill University may be required to spend one session in study at another university.

(4) A comprehensive examination, Agricultural Engineering 336-701D, will be taken either late in the Ph.D. 2, or early in the Ph.D. 3 registration year, to qualify to proceed to the completion of the Ph.D. degree.

A2.3 COURSES FOR HIGHER DEGREES

336-602A. ENVIRONMENT CONTROL IN AGRICULTURAL STRUCTURES. (3 lectures, 2 hour laboratory.) A study of the environmental effects of housing on stored crops and animals. The production, maintenance, and control of the environment. The effects of the interior environment on structural components. PROFESSOR MARQUIS

336-603D. GRADUATE SEMINAR. (1 hour) PROFESSOR OGILVIE AND STAFF

336-604B. RESEARCH INSTRUMENTATION. (2 lectures, 2 hours laboratory, odd-numbered years.) A systematic study of the underlying physical principles and operation of the sensing devices, amplifiers and recorders used in research. PROFESSOR NORRIS

336-605B. FUNCTIONAL ANALYSIS OF AGRICULTURAL MACHINES. (2 lectures, odd-numbered years.) Theoretical analysis of unit operations to be performed by various tillage and harvesting machines. These analyses will consider the physical and biological properties of the materials affected by the machines. PROFESSOR NORRIS

336-606A. LAND DRAINAGE ENGINEERING. (3 lectures, odd-numbered years.) Land drainage in relation to soils and crops. Design of regional drainage systems, stability of ditches, ice problems. Design of subsurface drainage systems. Theories of flow into drain tubes. Hydraulics of wells. Drainage of irrigated lands. Water table control. PROFESSOR BROUGHTON

*336-607B. ENGINEERING ASPECTS OF PLANT ENVIRONMENT. (3 lectures, even-numbered years.) The energy budget of the earth's surface. Laminar and turbulent flow in the air layer near plant-covered ground. Evaporation and transpiration. Artificial protection against advection and radiation frosts. The use of artificial means to improve the environment of plants. Control of environment in plant growth structures. PROFESSOR MARQUIS AND STAFF

336-608A, B. SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING. (2 conferences, either term.) Laboratory, field and library studies and reports on special problems related to Agricultural Engineering that are not covered in the regular course work. PROFESSOR NORRIS AND STAFF

*336-609A. HYDROLOGY. (2 lectures, even-numbered years.) A fundamental course in Hydrology. Topics covered include: the inter-relationships between precipitation, interception, infiltration, evapo-transpiration, and surface runoff; analysis of precipitation and streamflow data; use of hydrographs; hydraulics of groundwater and wells; use and replenishment of groundwater; evaporation and transpiration; irrigation water requirements. PROFESSOR BROUGHTON

336-701D. COMPREHENSIVE EXAMINATION IN AGRICULTURAL ENGINEERING. STAFF

A 3 DEPARTMENT OF AGRICULTURAL PHYSICS

A3.1 STAFF

Professor — R. H. DOUGLAS *(Chairman)*
Associate Professor — N. N. BARTHAKUR
Assistant Professors — M. A. FANOUS; P. SCHUEPP

A3.2 COURSE FOR HIGHER DEGREES

The course below may form part of the required courses for graduate students in Physics, or may be taken by students in other departments as a cognate subject.

*338-602B. ISOTOPIC TRACER TECHNIQUES. (2 lectures and 1 four-hour lab., second term; *Prerequisite:* 338-303A or equivalent.) An advanced practical course designed to introduce qualified students to laboratory equipment and techniques required for tracer experiments. The theory and use of end-window and windowless G.M. counters, proportional counters, scintillation counters both solid and liquid types, and a Nier type mass spectrometer will be studied. PROFESSOR BARTHAKUR

360-610A. STATISTICAL METHODS II. (3 hours lectures; *Prerequisite* 360-201A or equivalent.) Multiple, curvilinear and stepwise regression; partial and multiple linear correlation; simple analysis of covariance; cross and nested classifications; analysis of variance of disproportionate data: split-plot techniques; orthogonal comparisons; transformation. PROFESSOR FANOUS

360-613B. TECHNIQUES OF STATISTICAL ANALYSIS. (3 hours lectures; *Prerequisite* 360-610A or equivalent.) Non-parametric methods; multiple analysis of covariance; multivariate methods; sensitivity testing. PROFESSOR FANOUS

A 4 DEPARTMENT OF AGRONOMY

The research program of the department is concerned with most phases of agronomic investigations, with particular emphasis on problems in plant breeding and crop physiology.

A4.1 STAFF

Professors — H. R. KLINCK *(Chairman);* H. A. STEPPLER
Assistant Professors — G. GENDRON; N. C. LAWSON; W. RILEY

A4.2 REQUIREMENTS

In addition to *The General Regulations* of the Faculty of Graduate Studies, the Agronomy Department has the following requirements:

A4.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

(1) Candidates are required to have the B.Sc.(Agr.) degree with high standing, or an equivalent qualification, with sufficient basic training in the courses chosen for the higher degree. Students who lack such training must take the required courses of the undergraduate years, as well as courses in such other topics as the department may require.

(2) Students will be required to take courses 340-604D and 340-609D in each year of resident study, and courses 340-607C, 340-610B, and at least one other course of those listed. In addition, they may be required to take courses in cognate subjects.

(3) Since the research problems generally involve field experimentation, students will require at least 18 months and more frequently two years to complete the research and hence the requirements for the degree.

A4.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

(1) Candidates must have an M.Sc. degree with specialization in Agronomy and a high standing achieved in both course work and thesis.

(2) Students will be judged primarily by their ability to conduct research.

(3) Students will be required to take course 340-701D. Courses 340-604D and 304-609D will be taken in each year of resident study. Students may also be directed to take such other courses in Agronomy or cognate subjects as the department requires. Students who take their M.Sc. at McGill may be required to spend one session in study at another University (see paragraph 18c of Faculty Regulations).

A4.3 COURSES FOR HIGHER DEGREES

340-604D. SEMINAR. (1 hour.) Weekly meetings; each student will present at least one seminar each term. All students must register for this course each year. STAFF

*340-605B. FORAGE CROP EXPERIMENTATION. (2 lectures.) The conduct of forage experiments and methods of estimating parameters; current literature used as basis for discussion. PROFESSOR STEPPLER

340-606D. PLANT BREEDING. (3 lectures.) A directed reading and discussion course on plant reproduction, systems of mating, genetics and cytology as applied to the improvement of existing cultivars of plants and the development of new ones. PROFESSOR LAWSON

340-607C. METHODS OF AGRONOMIC RESEARCH. (3 hours, May to September.) A summer course to accuaint the student with the techniques of agronomic research in use in the experimental fields. PROFESSOR KLINCK AND STAFF

340-608D. SPECIAL TOPICS. (3 lectures.) Prescribed reading, conference and practical work on selected topics within agronomy. STAFF

340-609D. ADVANCES IN AGRONOMY. (1 lecture.) One-hour discussions by students and staff on technical topics of current interest in agronomy. The organization of agronomic research and agronomic groups will be considered. PROFESSOR KLINCK AND STAFF

340-610B. DESIGN OF EXPERIMENTS. (3 lectures; *Prerequisite:* Math. 360-610A or equivalent.) The design and analysis of experiments, with particular reference to agricultural research; factorials, incomplete block and lattice designs. PROFESSOR STEPPLER

340-701D. COMPREHENSIVE EXAMINATION IN AGRONOMY. (See paragraph 23 of Faculty Regulations.) STAFF

NOTE: A lecture may be replaced by a laboratory period of at least two hours.

A 5 DEPARTMENT OF ANIMAL SCIENCE

The department provides laboratory and library facilities for research work leading to the degrees of Master of Science and Doctor of Philosophy in each of the following disciplines:

Animal Genetics
Animal Physiology
Nutrition

A5.1 STAFF

Professor Emerius — E. W. CRAMPTON *(Nutrition)*

Professors — S. TOUCHBURN *(Chairman)*; H. R. NEILSON *(Nutrition)*

Associate Professors — R. D. BAKER *(Physiology)*; E. DONEFER *(Nutrition)*; A. FARMER *(Nutrition)*; P. Y. HAMILTON *(Acting Chairman)*; J. E. MOXLEY *(Animal Genetics)*

Assistant Professors — R. B. BUCKLAND *(Animal Genetics and Physiology)*; T. HARTSOCK *(Nutrition)*; G. M. JONES *(Nutrition)*; B. W. KENNEDY *(Animal Genetics)*; P. C. LAGUË *(Physiology)*

A5.2 REQUIREMENTS FOR ADVANCED DEGREES

Candidates are required to have either a Bachelor's degree in Agriculture or a B.Sc. degree with specialization in biology, biochemistry or home economics with honours standing or its equivalent.

A5.2.1 UNDERGRADUATE COURSES

A candidate will be required to complete undergraduate courses in Animal Science or in the basic sciences when his background in his elected discipline is inadequate.

342-301B. PRINCIPLES OF ANIMAL BREEDING.
342-311B. ANIMAL PATHOLOGY.
342-323A. MAMMALIAN PHYSIOLOGY.
342-422B. REPRODUCTIVE PHYSIOLOGY.
342-330A. FUNDAMENTALS OF NUTRITION.
342-331B. FUNDAMENTALS OF HUMAN NUTRITION.
342-332B. APPLIED ANIMAL NUTRITION.
342-424B. METABOLIC ENDOCRINOLGY AND GASTROINTESTINAL PHYSIOLOGY.
342-432B. ADVANCED ANIMAL NUTRITION.
342-440A. ANIMAL PRODUCTS I.
342-441B. ANIMAL PRODUCTS II.

Candidates may be required to take one or more of the following courses on the Montreal campus:

516-602A. ADVANCED ENDOCRINOLOGY — STEROID HORMONES.
516-603B. ADVANCED ENDOCRINOLOGY — NITROGEN CONTAINING HORMONES.

A5.2.2 COURSE REQUIREMENTS BY DEPARTMENT

In addition to the departmental courses indicated below, all candidates will be required to complete any cognate courses prescribed by their director of research. The completion of an acceptable thesis based upon the candidate's own research will be required.

Animal Genetics

(a) M.Sc. PROGRAM. — At least one of the following courses (342-603A, 342-604B, 342-602D) plus 342-690D and at least 2 additional courses selected in consultation with director of research.

(b) Ph.D. PROGRAM. — At least two of the following courses (342-603A, 342-601B, 342-602D, 342-722D) or their equivalent plus 342-690D and 342-700D and at least 2 additional courses selected in consultation with director of research.

Animal Physiology

(a) M.Sc. PROGRAM. — Courses 342-621D, 342-650D and 342-690D plus at least one additional course selected in consultation with director of research.

(b) Ph.D. PROGRAM. — 342-621D, 342-650D or their equivalents and 342-690D and 342-700D and at least two additional courses selected in consultation with director of research.

Nutrition

(a) M.Sc. PROGRAM. — Courses 342-631D, 342-632D, 342-650D, 342-690D and at least one additional course selected in consultation with research director.

(b) Ph.D. PROGRAM. — Required courses for M.Sc. program or their equivalent plus 342-690D, 342-700D and at least two additional courses selected in consultation with research director.

A5.2.3 GRADUATE COURSES

342-603A. PHYSIOLOGICAL GENETICS OF DOMESTIC ANIMALS. (2 lectures.) A consideration of biochemical and physiological variation in domestic animals as related to productive traits.
PROFESSOR BUCKLAND

*342-602D. PROBLEMS IN ANIMAL BREEDING. (2 lectures.) A consideration of statistical tools used for the genetic improvement of animals. PROFESSOR KENNEDY

342-604B. POPULATION GENETICS. (2 lectures.) A consideration of the problems involved in the improvement of animals and the application of genetics in their solution. PROFESSOR MOXLEY

342-621D. ADVANCED PHYSIOLOGY OF ANIMALS. (2 lectures, 1 lab.) Studies on the organization and function of animal systems, from the viewpoints of cellular and mammalian physiology. An experimental approach is used to investigate major areas of physiology such as nervous integration, circulation of body fluids, muscle contraction, intermediary metabolism, temperature regulation, and hormonal co-ordination. PROFESSOR BAKER AND STAFF

342-631D. EXPERIMENTAL TECHNIQUES IN NUTRITION. (1 lecture, 1 lab.) A series of lectures and laboratories of nutritional experimentation and surveys. Emphasis will be placed on the design and conduct of nutrition studies, selection of experimental animals, chemical and biological assays, statistical analysis, interpretation of data and preparation of technical reports. NUTRITION STAFF

*342-632D. ADVANCED NUTRITION. (2 lectures.) A series of lectures and discussions on subjects of current interest in nutrition, with special reference to energy, amino acids, vitamins and minerals, their quantitative requirements and metabolic interrelationships. NUTRITION STAFF

342-650D. ADVANCED ANIMAL BIOCHEMISTRY. (2 lectures.) Enzymology and biological oxidation; intermediary metabolism of carbohydrates, lipids, proteins and other compounds of nitrogen; endocrinological aspects of metabolism; metabolic roles of inorganic ions, vitamins and growth factors. STAFF

342-690D. SEMINAR. (1 hour) STAFF

342-691D. SPECIAL PROJECTS IN ANIMAL SCIENCE. (2 hour lab. — one term.) For students who undertake a research or library project not offered in other courses. STAFF

342-700D. DOCTORAL PRELIMINARY EXAMINATIONS. (See paragraph 23 of Faculty Regulations.)

*342-722D. MAMMALIAN AND AVIAN GERM CELLS. (2 lectures, 1 lab. — one term; *Prerequisite:* Animal Science 342-322B or equivalent.) Problem-oriented investigation of the recent theories and devlopments on the formation, transportation, and livability of spermatozoa and ova within the body, and their metabolism and preservation *in vitro*. PROFESSORS BAKER AND BUCKLAND

342-730D. COLLOQUIUM IN NUTRITION. (1 lecture; *Prerequisite:* Animal Science 632.) Discussions on recent developments in nutrition. Oral and written presentations by students will be emphasized. NUTRITION STAFF

*342-731D. ADVANCED RUMINANT NUTRITION. (2 lectures; *Prerequisites:* Animal Science 342-424B and 342-650D or equivalent.) A series of discussions on the organization and function of the ruminant digestive system, methods of study and factors which influence digestion. PROFESSORS JONES AND DONEFER

A 6 DEPARTMENT OF BIOLOGY

The following courses offered by the Department of Biology are given at Macdonald College. Please see Section B3 for staff list and more detailed information on the Department of Biology.

177-670A. CYTOLOGY. (First term: 2 hours and one laboratory period.) An intensive study of the cell with emphasis on the nucleus, nuclear division, chromosome morphology, chromosome aberrations, euploidy and aneuploidy, and chromosome behaviour in hybrids. PROFESSOR GRANT

177-671B. CYTOGENETICS. A study of cytological and genetic topics at an advanced level including polyploidy, apomixis and parthenogenesis, chromosome and gene replication, sex determination, and karyotype analysis. PROFESSOR GRANT

177-672B. MICROBIAL GENETICS. An analysis of recent progress in the genetics of microorganisms including viruses, bacteria, yeasts, paramecia, algae and fungi. PROFESSOR GRANT

177-673A. MUTAGENESIS AND RADIATION BIOLOGY. A study of the nature of mutations and the genetic effects of radiations and chemical mutagens on plants and animals and in crop improvement. PROFESSOR GRANT

A7 DEPARTMENT OF ENTOMOLOGY AND LYMAN ENTOMOLOGICAL MUSEUM

A liberal interpretation is put on the term Entomology. Excellent laboratory and library facilities are available for the courses listed below and for research. The Lyman Entomological Museum also provides excellent facilities for students of taxonomy. By an informal arrangement, part of a student's research may be done at the Entomological Research Institute, including the National Insect Collection, Ottawa, within reasonable distance of the Department. Students may be recommended to take undergraduate courses or courses offered by other departments of the University, either as part of their major work or as cognate subjects. All members of the graduate school are expected to take an active part in all departmental seminars and to address at least one seminar meeting per year. For those with credit in 350-695D, this may take the form of a Research Report.

The Lyman Entomological Museum and Research Laboratory, although integrated with it, is not administratively a part of the Department of Entomology, but it is academically staffed by, and all its students are registered in that department. The Museum is exclusively a research and teaching institution.

A7.1 STAFF

Professors — F. O. MORRISON *(Chairman)*; E. M. DuPORTE *(Emeritus)*; D. K. McE. KEVAN *(Director, Lyman Entomological Museum and Research Laboratory)*; *J. E. McFARLANE*

Associate Professors — R. K. STEWART; V. R. VICKERY *(Curator, Lyman Entomological Museum and Research Laboratory)*

Assistant Professor — S. B. HILL

Lecturer — F. E. A. ALI KHAN

Postdoctoral Fellow — H.-C. LIM

Associate Members of Department — *Professors* K. G. DAVEY and E. MEEROVITCH *(Institute of Parasitology)* and J. R. BIDER *(Wildlife Biology)*

Visiting Lecturers — H. F. HOWDEN, E. J. LeROUX, E. E. LINDQUIST, J. F. McALPINE and W. R. M. MASON *(Entomological Research Institute, Ottawa)*

A7.2 REQUIREMENTS

A7.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates for admission must have had (1) satisfactory previous training in mathematics, physical sciences and biology; and (2) have obtained at least a second class Bachelor's degree in Zoology or Entomology, or the equivalent. For students who satisfy these conditions the minimum period of study is one year, but for those whose equivalent courses are deficient in Entomology it is two years, one of which may be a qualifying year in which mainly advanced undergraduate courses are taken.

In addition to presenting a thesis the student shall take such courses and write such examinations as are deemed necessary by the Chairman of the Department in consultation with the candidate's research director. Normally this amounts to a minimum of two full graduate courses (or their equivalent) in addition to 350-695D.

The candidate will normally be expected to spend at least one summer season in full-time research on the Macdonald Campus or, under suitable direction, at some other approved institution. It is seldom possible for a candidate to complete his thesis during the one required year of residence. Preliminary studies may begin before the opening of the academic year.

A7.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Students who have obtained a high standing in the M.Sc. degree in Entomology or its equivalent (including the M.Sc. degree in Zoology, with a sound entomological background), may proceed to the Ph.D. degree in two additional years. Under certain circumstances students holding a Bachelor's degree of high standing may change their registration from the M.Sc. degree to the Ph.D. degree or may even register directly for the Ph.D. degree with the consent of the Chairman of the Department, but before being allowed to enter third year, such students must pass an examination to determine their fitness to proceed. This will normally take the form of the comprehensive examination (350-701D) taken by all Ph.D. candidates before proceeding to a second year of residence on the Macdonald Campus. Three years of residence are required of such students.

In addition to presenting a thesis the candidate may be required to take such courses and pass such examinations as are decided upon in consultation with the Chairman of the Department and the director of his research. Normally no course work (other than Seminar) will be required during the final year and not usually more than one full course (or its equivalent) during the preceding year for candidates already possessing an M.Sc. degree of McGill University or its equivalent. Candidates may, however, be advised or required to attend courses bearing on their research work, or to make up deficiencies, at any time during their period of resident study.

Participation in seminars will be taken into consideration in the final assessment of the candidate. Language requirements are in accordance with Faculty regulations. Two languages, other than English, will normally be required (selected from French 126-790D, German 129-790D and Russian 141-790D).

Ph.D. candidates may be permitted to spend one of their years of full-time study at an approved university or research institution other than McGill University, provided that they spend at least two academic sessions' residence at McGill University. The candidate may be required to spend the equivalent of two summer sessions in full-time research on the Macdonald Campus or, under suitable direction, at some other approved institution. Preliminary studies may begin before the opening of the academic year.

Candidates for M.Sc. or Ph.D. degrees should indicate in some detail their fields of special interest when making application for admission. Facilities are available for research in most branches of entomology and in related fields, but candidates with special problems should consult the Chairman of the Department in advance.

A7.3 COURSES FOR HIGHER DEGREES

350-610D. ADVANCED TAXONOMY AND ZOOGEOGRAPHY. PROFESSORS KEVAN AND VICKERY

350-625A. GENERAL INSECT ECOLOGY. PROFESSOR STEWART

350-631A. SOIL FAUNA. PROFESSOR KEVAN AND DR. HILL

350-632B. SOIL ECOLOGY. PROFESSOR KEVAN AND DR. HILL

350-635B. AQUATIC ENTOMOLOGY. DR. ALI KHAN

350-640D. ADVANCED ECONOMIC ENTOMOLOGY. PROFESSOR MORRISON

350-660A, B. HISTORY OF ENTOMOLOGY. (Reading knowledge of German required. This course is given only if requested by a sufficient number of students.) PROFESSOR KEVAN

350-695D. SEMINAR AND RESEARCH REVIEW. (Two weekly meetings.) PROFESSOR MORRISON AND STAFF

350-701D. Ph.D. COMPREHENSIVE EXAMINATION. ENTOMOLOGY STAFF AND OTHERS

350-715D. ADVANCED INSECT MORPHOLOGY. PROFESSORS STEWART AND DuPORTE

350-720D. ADVANCED INSECT PHYSIOLOGY.
PROFESSOR McFARLANE ASSISTED BY PROFESSOR DAVEY

350-726B. INSECT POPULATION DYNAMICS. PROFESSOR STEWART

350-727D. GENERAL INSECT ECOLOGY AND POPULATION DYNAMICS.
PROFESSOR STEWART ASSISTED BY ENTOMOLOGY STAFF

350-733D. SOIL ZOOLOGY. (Includes 631A and 632B.) PROFESSOR KEVAN AND DR. HILL

350-750A, B. VETERINARY AND MEDICAL ENTOMOLOGY. (Given only irregularly by special arrangement when demand sufficient.)
PROFESSOR KEVAN, ASSISTED BY PROFESSORS MEEROVITCH, DAVEY AND DR. ALI KHAN

366-680D. NEMATOLOGY. PROFESSOR ESTEY

374-602B. CONSERVATION ECOLOGY. (Augmented undergraduate course for Wildlife graduates.)
PROFESSOR BIDER

374-605D. WILDLIFE ECOLOGY. PROFESSOR BIDER

391-640C. APPLIED PARASITOLOGY. PROFESSOR MEEROVITCH

A8 DEPARTMENT OF HORTICULTURE

A8.1 STAFF

Associate Professors — C. D. TAPER *(Chairman)*; JEAN DAVID

Assistant Professor — B. B. BIBLE

Sessional Lecturers — L. PERRON; S. WIGDOR

A8.2 REQUIREMENTS FOR THE M.Sc. DEGREE

If the M.Sc. is taken in Fruit or Vegetable Production the candidate must take courses 358-695D and 358-610D or 358-615D, and a minimum of two full courses selected from the following: 360-610A (Statistical Methods II), 340-610B (Design of Experiments), 358-625A (Crop Physiology), 358-630B (Crop Physiology), 177-670A (Cytology), 177-671B (Cytogenetics), 358-620D (Fruit and Vegetable Preservation), or other courses in related subjects.

If the M.Sc. is taken in Food Preservation the candidate must take courses 358-695D and 358-620D, 362-442A (Food Microbiology and Sanitation), and at least one additional course as required by the director of the candidate's research.

A8.3 COURSES FOR THE M.Sc. DEGREE

Adequate laboratory and library facilities are available for the courses listed below and for research.

358-610D. POMOLOGY. The biology of pomological species, and the technology of orchard and small fruit production; major aspects, significant research, recent advances.
PROFESSOR TAPER

358-615D. VEGETABLE CROPS. Discussion and reading assignments on the application of plant physiology and other sciences to the production of vegetable crops.
PROFESSOR BIBLE

358-620D. FRUIT AND VEGETABLE PRESERVATION. Lectures and reading assignments on the fundamental processes and recent developments in the techniques of fruit and vegetable preservation.
PROFESSOR DAVID

358-625A. CROP PHYSIOLOGY: GROWTH AND DEVELOPMENT. A study of plant growth and development as related to the improvement of agronomic and horticultural crops, with emphasis on plant hormones, phytochrome, germination, growth, flowering, fruit development, and senescence. These topics will be reviewed in discussion sessions with each student contributing both oral and written presentations. PROFESSOR BIBLE

358-630B. CROP PHYSIOLOGY: PLANT PROCESSES. A study of plant metabolic phenomena as related to the improvement of agronomic and horticultural crops, with emphasis on plant mineral nutrition, translocation, water relations, photosynthesis and respiration. (Course format as stated under course 358-625A.) PROFESSOR BIBLE

358-635D. SPECIAL TOPICS. Prescribed reading, conference and practical work on one or more selected topics within horticulture, such as research methods, plant propagation, tropical crops, storage and landscape materials. PROFESSOR TAPER AND STAFF

358-695D. SEMINAR. Weekly meetings; each student will present at least one seminar each term. All students must register for this course each year. STAFF

A 9 DEPARTMENT OF MICROBIOLOGY

Adequate laboratory and library facilities are available for courses leading to higher degrees, and for research. Candidates for the higher degree must meet the course requirements satisfactorily but are judged principally by their research ability. Normally in this Department the research problem will be on microbial physiology and biochemistry or on microbiological aspects of soil, food or water.

A9.1 STAFF

Professors — A. C. BLACKWOOD; ROGER KNOWLES *(Chairman)*; R. A. MacLEOD
Associate Professors — E. S. IDZIAK; C. E. TANNER *(Parasitology)*
Assistant Professors — I. W. DeVOE; J. M. INGRAM
Lecturer — GRACE ROBERTSON
Professional Associate — J. THOMPSON

A9.2 REQUIREMENTS

A9.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates are required to have the B.Sc.(Agr.) degree with honours standing or its equivalent. Students who lack sufficient training will be required to take at least two of the courses given in the department plus the seminar, and will be required to take cognate courses in related subjects.

To fulfil requirements candidates must satisfy the department in an oral examination that they possess a good general knowledge of microbiology. The candidate must present a satisfactory thesis based on his own research.

A9.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates, normally, are required to have received an M.Sc. degree from this department, or an equivalent degree. The candidate must demonstrate a sound critical ability and a capacity for research and must complete an original research problem and present a satisfactory thesis based on this research. In addition, the candidate will be required to take examinations in courses given by this department or in cognate subjects given at Macdonald College or at the Montreal Campus and to take part in the Graduate Seminar in each year of residence. Normally the candidate will be required to take an oral or written comprehensive examination (Course 362-701D) no later than the beginning of his final year.

A9.3 COURSES FOR HIGHER DEGREES

*362-760D. PHYSIOLOGY OF MICROORGANISMS. (2 hours.) Selected topics on physiological mechanisms associated with the life and growth of microbial cells: biosynthetic pathways; transport mechanisms; intermediary metabolism of carbohydrates, fats and proteins; utilization of special compounds; other current topics. PROFESSOR INGRAM AND STAFF

362-761D. SOIL MICROBIOLOGY. (2 hours.) A consideration of recent advances in selected aspects of soil microbiology; autotrophs, nitrogen relationships, microfauna, soil-borne pathogens, antibiotics in soil, degradation of recalcitrant molecules, etc. PROFESSOR KNOWLES

362-762D. MICROBIAL BIOCHEMISTRY. (2 hours.) Nutritional requirements of microorganisms considered in relation to the biosynthetic capacities of the cells; biochemical genetics and enzyme formation; enzyme kinetics and intra- and extracellular enzymatic mechanisms. Stress will be placed on the comparative biochemistry of microbial and other types of living cells. PROFESSOR MacLEOD

362-763D. INVITATION LECTURES IN MICROBIOLOGY. (1 hour.) Prominent scientists, actively engaged in research will be invited to present a series of lectures in the field of their research interest. The speakers and their topics will be chosen to complement the offerings of the permanent staff.

362-769D. GRADUATE SEMINAR. (1 hour.) All graduate students are required to present seminars on selected topics and to prepare and discuss reports from the current literature. STAFF

362-701D. COMPREHENSIVE EXAMINATION. (See paragraph 23 of Faculty Regulations.) STAFF

A 10 INSTITUTE OF PARASITOLOGY

The Institute maintains adequate laboratory and library facilities for research in Parasitology. Candidates for either the M.Sc. or the Ph.D. degrees should possess an honours degree, or its equivalent, in one of the biological sciences. A degree in veterinary or human medicine will also satisfy the entrance requirements. Previous specialization in Parasitology is less important than a sound background in Invertebrate Zoology, Biochemistry, and Physiology.

A10.1 STAFF

Professors — K. G. DAVEY *(Director)*; EUGENE MEEROVITCH; C. E. TANNER
Associate Professor — R. P. HARPUR
Research Associates — M. E. RAU; J. E. McLAUGHLIN

A10.2 REQUIREMENTS

A10.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates who, in the opinion of the University are not fully qualified, may be required to spend a qualifying year of study. While the emphasis at the Institute will be on research, courses 391-603D and 391-605D are compulsory, and courses in related departments may be required. A minimum of one year's residence is necessary to complete the requirements.

A10.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

While, in exceptional circumstances, well qualified candidates may proceed directly to a Ph.D. degree, intending candidates for this degree will normally hold a Master's degree in some branch of the biological sciences. Courses 391-605D and 391-703D

are compulsory, and courses in related subjects may be required, depending upon the candidate's background and field of interest. Greatest emphasis will be given to the candidate's research problem. A minimum of three years in residence is necessary to complete the requirements.

A10.3 COURSES FOR HIGHER DEGREES

391-504C. APPLIED PARASITOLOGY. An intensive course lasting three weeks, usually offered at the end of regular lectures in the spring. PROFESSOR MEEROVITCH

391-600D. PRELIMINARY ORAL EXAMINATION FOR M.Sc. CANDIDATES.

391-603D. ADVANCED PARASITOLOGY. Lectures, laboratory work, and assigned reading on selected topics in Parasitology and related fields. PROFESSOR HARPUR AND STAFF

391-605D. PARASITOLOGY SEMINAR. A course of informal discussion on current problems and concepts in Parasitology and related fields. Because the contents of the course will vary from year to year, all students are required to attend the seminars each year.

391-700D. PRELIMINARY ORAL EXAMINATION FOR Ph.D. CANDIDATES.

391-703D. COMPREHENSIVE COURSE FOR Ph.D. CANDIDATES. A course of reading, essays, and tutorials, designed to fit the needs of individual candidates. STAFF

A 11 DEPARTMENT OF PLANT PATHOLOGY

Laboratory, greenhouse, and library facilities are available for research leading to higher degrees. The main research interests in the department are in disease physiology, epidemiology and biology of disease, root diseases caused by fungi and nematodes, viral components produced in mixed virus infections, and history of plant pathology.

A11.1 STAFF

Professors — R. H. ESTEY *(Chairman)*; R.-L. PELLETIER; W. E. SACKSTON *(On leave)*

Assistant Professors — J. F. PETERSON; M. A. VISWANATHAN; D. W. WOODLAND *(Curator McGill University Herbarium)*

A11.2 REQUIREMENTS

A11.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates are required to have honours or a good second class standing in botany, microbiology, or a related biological science, with sound training in mathematics, physics and chemistry. All candidates will be evaluated by an interview before a course program is outlined. Courses required in the candidate's program may be from the department's offerings or from other departments, and must be approved by the candidate' advisory committee.

The candidate must present a satisfactory thesis based on original research.

A.11.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Students who have high academic standing in the M.Sc. degree program in Plant Pathology at McGill University, or its equivalent, may proceed to the Ph.D. degree. Students will be required to pass the Ph.D. preliminary examination (oral and/or written) before being admitted as a candidate for the Ph.D. degree. A program of courses must be approved by the student's advisory committee.

Candidates for the Ph.D. degree are required to have a working knowledge of English or French and a reading knowledge of the other or another language in which there is an extensive literature pertaining to their field of research.

Candidates will be examined at the completion of their studies to ensure that they have a good general knowledge of their field.

Each candidate is required to submit a satisfactory thesis based on original research and to defend it before the thesis committee.

A11.3 COURSES FOR HIGHER DEGREES

366-602B.	DISEASES OF FIELD AND FOREST CROPS.	PROFESSOR VISWANATHAN
366-603B.	DISEASES OF HORTICULTURAL CROPS.	PROFESSOR VISWANATHAN
366-604A.	PLANT PATHOLOGY RESEARCH METHODS.	PROFESSOR PELLETIER AND STAFF
366-607B.	PLANT VIRUS DISEASES.	PROFESSOR PETERSON
366-608E.	PLANT VIROLOGY METHODS.	PROFESSOR PETERSON
366-610A or B.	HISTORY OF PLANT PATHOLOGY.	PROFESSOR ESTEY
366-620A.	ADVANCED MYCOLOGY.	PROFESSOR ESTEY
366-660D.	SEMINAR (one meeting weekly).	PROFESSOR PELLETIER AND STAFF
366-680A.	NEMATOLOGY.	PROFESSOR ESTEY
366-681B.	NEMATODE DISEASES OF PLANTS.	PROFESSOR ESTEY
366-690D.	TAXONOMY AND ECOLOGY OF ECONOMIC PLANTS.	PROFESSOR WOODLAND
366-700D.	Ph.D. PRELIMINARY EXAMINATION.	
366-701D.	Ph.D. COMPREHENSIVE EXAMINATION.	
366-710D.	PRINCIPLES OF PLANT PATHOLOGY.	PROFESSOR PELLETIER
*366-730D.	ADVANCED PLANT PATHOLOGY.	PROFESSOR PELLETIER

A 12 DEPARTMENT OF SOIL SCIENCE

The Department offers research facilities for studies in Soil Science leading to the degrees of Master of Science and Doctor of Philosophy.

A12.1 STAFF

Professors — H. G. DION; B. P. WARKENTIN

Associate Professors — A. F. MacKENZIE *(Chairman)*; J. F. G. MILLETTE

A12.2 REQUIREMENTS

A12.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates are required to have a Bachelor's degree in Agriculture with a sufficient background in Soil Science and in the basic sciences, or a B.Sc. degree with specialization in chemistry or geology. Students will be required to make up undergraduate courses in soils or the basic sciences when their background work is considered inadequate.

The degree work will include course requirements, satisfactory performance in examinations as required by the Department, and presentation of a thesis based upon the candidate's own research work.

A12.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates are normally required to hold an M.Sc. degree. The candidates will be judged primarily on ability to conduct an original and independent research study.

The work for the degree will include course work as required by the research problem and the candidate's background, satisfactory performance in examinations including the comprehensive examination, and satisfactory completion of research work and the thesis.

A12.3 COURSES FOR HIGHER DEGREES

372-602D. CHEMISTRY AND FERTILITY OF SOILS. (2 lectures per week, one term.) Discussion of significant research in chemistry, movement and uptake of plant nutrients; composition and properties of soil organic matter; analytical techniques. PROFESSOR MacKENZIE

372-610D. PEDOLOGY. (2 lectures per week, one term.) Processes of profile development, principles of classification, comparative taxonomy, land utilization. PROFESSOR MILLETTE

372-620D. PHYSICAL PROPERTIES OF SOILS. (2 lectures per week, one term.) Structure and fabric, water retention and movement in soils, diffusion of gases, heat transfer. Applications to soil strength, infiltration and evaporation of water, soil temperature and freezing. PROFESSOR WARKENTIN

*372-630D. SOIL MINERALOGY. (2 lectures per week, one term.) Structure and identification of minerals, weathering, properties of clay surfaces, adsorption on clays, ion exchange. PROFESSORS MacKENZIE AND WARKENTIN

372-640D. GRADUATE SEMINAR. (1 hour per week.) Discussions of selected topics in soil science. Reports to be prepared and presented by students. STAFF

372-700D. Ph.D. PRELIMINARY EXAMINATION. STAFF AND OTHERS

372-701D. Ph.D. COMPREHENSIVE EXAMINATION.

A13 WILDLIFE BIOLOGY

See Section A7.

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "B" BIOLOGICAL SCIENCES

1973-74

NOTE: Courses, marked with an asterisk (*), are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Fall and Spring term course

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada.

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B1 BELLAIRS RESEARCH INSTITUTE

The Bellairs Research Institute is situated on the St. James coast of the island of Barbados. The Institute was established through the donation of the late Commander Carlyon Bellairs who left his estate on the island in trust to the University for the support of a research institute. The Institute emphasizes Marine Biology *(see under Marine Sciences Centre)* and Tropical Climatology *(see under Geography)*. It also holds every other year a field course in Tropical Marine Ecology. Information relating to the Institute and its activities may be obtained from the Director, The Bellairs Research Institute, St. James, Barbados, West Indies, or from the Director of the Marine Sciences Centre.

B2 DEPARTMENT OF BIOCHEMISTRY

B2.1 STAFF

Professors — A. F. GRAHAM *(Chairman)*; D. RUBINSTEIN; S. SOLOMON; T. L. SOURKES; J. H. SPENCER; L. S. WOLFE

Associate Professors — P. E. BRAUN; D. T. DENHARDT; M. J. FRASER; E. A. HOSEIN; ROSE M. JOHNSTONE; A. R. WASSERMAN

Assistant Professors — ELEANOR M. HARPUR; R. E. MacKENZIE; E. A. MEIGHEN; S. MILLWARD; W. MUSHYNSKI

Lecturer — M. R. REESAL

Associate Members — M. K. BIRMINGHAM *(Psychiatry)*; R. BLOSTEIN *(Exp. Medicine)*; J. DUPRE *(Exp. Medicine)*; D. EDWARD *(Exp. Surgery)*; W. C. GALLEY *(Chemistry)*; L. GOODFRIEND *(Exp. Medicine)*; L. M. JERRY *(Exp. Medicine)*; H. PAPPIUS *(Exp. Neurochemistry)*; C. SCRIVER *(Pediatrics)*; J. SHUSTER *(Exp. Medicine)*

B2.2 REQUIREMENTS

Students must submit with their applications for admission the results of the Graduate Record Examination (aptitude test, and achievement test in Biology or Chemistry) and two letters of recommendation.

Students who have satisfactorily completed an Honours course in Biochemistry and who have been accepted as research students by the Department and by a research director approved by the Department may register for the M.Sc. degree which usually involves a two-year program. Following completion of one year of study in the Department, suitable candidates may be allowed to proceed direct to the Ph.D. degree depending on the ability they display in research and course work.

Program of courses for each student is determined by the individual research director in consultation with the Chairman of the Department's Graduate Advisory Committee. Students who have not obtained a suitable Honours degree or its equivalent will be required to take a qualifying year or otherwise make up for deficiencies.

Candidates who have obtained the M.Sc. degree with satisfactory standing from this department, or have completed an acceptable program from another university, may be accepted for studies leading to the Ph.D. degree provided they are accepted by a research director.

Research work is carried on in the Department laboratories where projects deal with the biochemistry of erythrocytes, liver, brain, muscle, chloroplasts, endocrine organs, nucleic acids, peptides, lipids, and transport phenomena, or the Biochemistry Laboratories of the Allan Memorial Institute of Psychiatry, the Laboratory of Experimental Neurochemistry of the Montreal Neurological Institute, the University Clinics of the Montreal General and the Royal Victoria Hospitals or in certain other laboratories.

There is no second language requirement for Ph.D. students, except where individual research directors wish to make such a requirement for their own students. Students whose mother tongue is not English must be proficient in English and may be required to take a remedial English course if the research director deems this necessary.

B2.3 COURSES FOR HIGHER DEGREES

B2.3.1 GRADUATE-LEVEL COURSES

*507-602A. TOPICS IN MOLECULAR BIOLOGY. (3 credits; *admission by permission of instructor only.*)
PROFESSORS DENHARDT AND MILLWARD

*507-603B. IMMUNOCHEMISTRY. (3 credits; *admission by permission of instructor only.*)
PROFESSORS SHUSTER AND JERRY
(University Clinic, Montreal General Hospital)

B2.3.2 ADVANCED UNDERGRADUATE COURSES

507-352D. METABOLISM AND REGULATION. (6 credits; *Prerequisite:* Biology 177-201-D; *Co-requisite:* Biology 177-301A, 302B.)
PROFESSOR JOHNSTONE AND STAFF

507-450A. PROTEIN STRUCTURE AND FUNCTION. (3 credits; *Prerequisites:* Biology 177-301A, 302B.)
PROFESSORS MACKENZIE AND MEIGHEN

507-451B. BIOPHYSICAL CHEMISTRY. (3 credits; *Prerequisites:* Chemistry 180-204A, 214B or 213A, 223B required; Chemistry 180-313A recommended. This course is also listed as Chemistry 180-404B.)
PROFESSORS MEIGHEN AND GALLEY (Chemistry)

507-454A. NUCLEIC ACIDS. (3 credits; *Prerequisites:* Biology 177-301A, 302B; Biochemistry 352D.)
PROFESSORS DENHARDT AND SPENCER

507-455B. NEUROCHEMISTRY. (3 credits; *Prerequisites:* Biochemistry 507-352D and Biology 177-301A, 302B.)
PROFESSORS SOURKES, WOLFE AND STAFF

B2.3.3 SEMINARS

There are three series of seminars: the junior seminar consists of a presentation by each student near the end of his M.Sc. program or the beginning of the Ph.D. II year, on the subject of his recent or on-going research. The senior seminar consists of a presentation by every third or later year Ph.D. candidate on the subject of his recent research. Departmental staff seminars consist of presentations by members of staff and visiting scientists outlining their work with their collaborators. Graduate students are required to attend all the above seminars and certain informal seminars, and are encouraged to attend relevant scientific meetings.

B3 DEPARTMENT OF BIOLOGY

The Biology Department was established in the summer of 1970 by amalgamation of the Departments of Botany, Genetics and Zoology. The Graduate Training Committee of the Department has prepared a detailed description of admission and degree requirements for study towards an M.Sc. or Ph.D. in Biology, and a summary of research interests of each staff member. This information can be obtained from the Secretary of this Committee.

The Department is in the process of reorganizing its graduate courses to reflect four main areas of research which it intends to emphasize and strengthen, namely: Ecology, Human Genetics, Molecular Biology and Neurobiology. The course list below is a

compilation of graduate courses which were offered regularly by the former Departments and are being continued for the time being in the Biology Department. Note that many former courses, e.g., those offered only occasionally to small groups of students, are now combined under the general heading "Recent Advances in Biology". This course has five numbers assigned to it in order to accommodate students who take more than one course in the category. Note also that many senior undergraduate courses in Biology and related subjects (see Faculty of Science listings) are available to graduate students and are acceptable for credit (consult Graduate Training Committee).

B3.1 STAFF

Professors — G. A. MACLACHLAN *(Chairman);* W. G. BOLL; E. R. BOOTHROYD; P. S. B. DIGBY; F. C. FRASER; W. F. GRANT; JOAN MARSDEN; J. D. METRAKOS; B. B. MUKHERJEE; D. M. STEVEN; C. M. WILSON

Associate Professors — SARAH GIBBS; M. E. GOLDSTEIN; P. R. GRANT; J. KALFF; ETTA KAFER-BOOTHROYD; W. C. LEGGETT; R. E. LEMON; VALERIE PASZTOR; R. J. POOLE; R. SATTLER; R. SINCLAIR; K. SITTMANN; J. L. SOUTHIN; DAPHNE TRASLER; H. TYSON; NANCY WOLFSON

Assistant Professors — A. N. AUCLAIR; A. H. BUSSEY; R. CHASE; D. R. FROMSON; K. MAIER; G. A. MANLEY; W. C. OECHEL; JACQUELINE SOMERS; J. A. SPENCE

Research and Professional Associate — D. P. S. VERMA

B3.1.1 OTHER McGILL STAFF WITH GRADUATE STUDENTS OR TEACHING RESPONSIBILITIES IN THE BIOLOGY DEPARTMENT

Professors — K. G. DAVEY *(Parasitology);* M. J. DUNBAR *(Marine Sciences)*

Associate Professors — R. CARROLL *(Redpath Museum);* C. R. SCRIVER *(Montreal Children's Hospital)*

Assistant Professors — R. GOLD *(Montreal Children's Hospital);* P. HECHTMAN *(Montreal Children's Hospital);* CAROL LALLI *(Marine Sciences);* L. PINSKY *(Jewish General Hospital);* H. REISWIG *(Redpath Museum);* H. M. SCHULMAN *(Jewish General Hospital)*

B3.2 COURSES FOR HIGHER DEGREES

B3.2.1 GENERAL COURSES

177-650, 177-651, 177-652 (A, B or C). RECENT ADVANCES IN BIOLOGY. Directed reading, seminar and discussion courses in various subjects of current interest in biological research.

177-655, 177-656 (A, B or C). LABORATORY PROJECTS AND TECHNIQUES. Directed training in selected methods used in various areas of current interest in biological research.

177-700D. DOCTORAL QUALIFYING EXAMINATION. This will be an oral qualifying examination arranged by members of the candidate's Supervisory Committee within 15 months of registration.

177-702D. Ph.D. SEMINAR. Doctoral candidates are required to give a public oral presentation of their major results before submitting a thesis.

LANGUAGE EXAMINATION. At the discretion of their Supervisory Committee doctoral candidates may be required to demonstrate facility in a foreign language.

B3.2.2 SPECIFIC COURSES

177-417B. DEVELOPMENTAL MAMMALIAN GENTICS. Lectures and conferences.
PROFESSOR D. TRASLER

177-660C. ADVANCED PLANT ECOLOGY. Lecture, conference, field and laboratory work.
PROFESSOR A. AUCLAIR

177-661C. SEMINAR IN ANIMAL ECOLOGY. A detailed survey of animal ecology with emphasis on theoretical and practical aspects of new developments and modern methods of analysis.
STAFF

177-670A. CYTOLOGY (given at Macdonald College). (First term: 2 hours and one laboratory period.) An intensive study of the cell with emphasis on the nucleus, nuclear division, chromosome morphology, chromosome aberrations, euploidy and aneuploidy, and chromosome behaviour in hybrids. PROFESSOR W. GRANT

177-671B. CYTOGENETICS (given at Macdonald College). A study of cytological and genetical topics at an advanced level including polyploidy, apomixis and parthenogenesis, chromosome and gene replication, sex determination, and karyotype analysis. PROFESSOR W. GRANT

177-672B. MICROBIAL GENETICS (given at Macdonald College). An analysis of recent progress in the genetics of microorganisms including viruses, bacteria, yeasts, paramecia, algae and fungi. PROFESSOR W. GRANT

177-673A. MUTAGENESIS AND RADIATION BIOLOGY (given at Macdonald College). A study of the nature of mutations and the genetic effects of radiation and chemical mutagens on plants and animals and in crop improvement. PROFESSOR W. GRANT

177-675B. STATISTICAL METHODS IN GENETICS. A presentation and discussion of statistical methods of analyzing genetic changes in populations of domestic animals and plants, with particular reference to pedigrees, heterosis, selection, etc. PROFESSOR H. TYSON

177-680A. TECHNIQUES IN ELECTRON MICROSCOPY. (5 hours laboratory; *Prerequisite:* Permission of instructor.) An intensive course in the techniques of electron microscopy for students who intend to do research on cell ultrastructure. PROFESSOR S. GIBBS

B 4 MARINE SCIENCES CENTRE

Graduate students will take such courses, including cognate courses in other departments, as are considered necessary for their training and for the development of their particular fields of specialization. All students are expected to take courses 395-440A, 395-441B, 395-660D, and 395-309A, or equivalent. Primary emphasis for both the M.Sc. and Ph.D. degrees is placed upon research and thesis presentation. The comprehensive examination for the Ph.D. candidates usually takes place at the end of the second year of study; it covers the whole field of marine science but allows for the specialized interests and training of each student in Botany, Zoology, Microbiology, Physics or Geology.

Students are accepted on the basis of first or second class honours degree in an appropriate subject, or high standing in general science; a qualifying year in addition to the minimum degree requirement may be necessary, at the discretion of the Chairman or Vice-Chairman.

The Marine Sciences Centre is inter-departmental in scope, emphasizing the essential inter-disciplinary nature of the science of Oceanography. Excellent laboratory and library facilities are available for research, and opportunities for field work exist in the Arctic, the estuary of the St. Lawrence river, the Gulf of St. Lawrence, the Canadian Eastern Seaboard, and at the Bellairs Research Institute at Barbados. The special research interests of the Centre include the physics of sea ice, the energy exchange between atmosphere and hydrosphere, marine climatology, the dynamics of estuaries, marine bacteria, growth and life cycles of marine organisms, marine productivity, marine biogeography and sedimentation.

The Redpath Museum of McGill University offers teaching and research facilities in marine biology and keeps extensive plankton collections.

B4.1 STAFF

Professors — M. J. DUNBAR *(Biology)*; E. R. POUNDER *(Physics) (Vice-Chairman)*; D. M. STEVEN *(Biology)*; J. B. LEWIS *(Director, Redpath Museum)*; M. P. LANGLEBEN *(Physics)*

Associate Professors — B. F. D'ANGLEJAN *(Chairman)*; C. M. LALLI

Assistant Professors — R. G. INGRAM; F. SANDER

Lecturer — D. C. MACLELLAN
Research Assistant — SUSAN WOODS
Associate Members — SVENN ORVIG *(Meteorology)*; M. E. GOLDSTEIN *(Biology)*; R. A. MACLEOD *(Microbiology)*; S. B. SAVAGE *(Civil Eng.)*; ROGER KNOWLES *(Microbiology)*; E. W. MOUNTJOY *(Geology)*
Honorary Professor (part-time) — G. LAROCHE
Honorary Research Fellow — PAUL MONTREUIL *(Director, Montreal Aquarium)*

B4.2 COURSES FOR HIGHER DEGREES

B4.2.1 ADVANCED UNDERGRADUATE COURSES

177-440A. MARINE ENVIRONMENT. (3 hours lectures and labs.) Physical and chemical parameters of the environment and their influence on marine life; ecological divisions of the ocean; descriptions of marine life; plankton biology and biogeography; history and methods of marine research. PROFESSORS LALLI AND DUNBAR

177-441B. BIOLOGICAL OCEANOGRAPHY. (3 hours lectures and labs.) Ecology of benthic organisms; primary and secondary production in the ocean; marine fisheries; marine microbiology; pollution. PROFESSORS LEWIS, LALLI AND DUNBAR

198-309A. DESCRIPTIVE OCEANOGRAPHY. (3 hours.) Major physical and chemical properties of sea water; methods of measurements, space and time distribution. The geostrophic approximation and the dynamic method. General features of the oceanic circulation. PROFESSOR D'ANGLEJAN

198-319B. INTRODUCTION TO DYNAMICAL OCEANOGRAPHY. (3 hours.) Equations of motion. Geostrophy. Boundary layers. Horizontal wind-driven circulation. Waves and tides. PROFESSOR INGRAM

B4.2.2 GRADUATE COURSES

*395-636D. ADVANCED ZOOLOGY OF THE MOLLUSCA AND CRUSTACEA. (3 hours.) Description of the marine Mollusca and Crustacea. Evolution, ecology and functional morphology. Feeding mechanisms, reproductive patterns and interactions with other marine organisms. PROFESSOR LALLI

395-639A. TROPICAL MARINE ECOLOGY. (2 hours lectures and labs.) The ecology of marine organisms and marine communities of tropical oceans. PROFESSOR LEWIS

395-660D. SEMINAR IN GENERAL OCEANOGRAPHY. (2 hours.) Advanced seminar course on research in salt water environments, with emphasis on contemporary work. Discussion of the original literature, recent advances and basic theory. STAFF

395-691D. ADVANCED MARINE ECOLOGY. (2 hour seminar.) Primary and secondary production; physiological ecology, population dynamics, distribution analysis, and diversity of marine organisms. PROFESSOR LALLI

*395-695A. PHYSICS OF THE OCEAN. (3 hours.) General circulation on "Beta" plane, wind and thermally driven flows. Two layer models. Boundary currents. PROFESSOR INGRAM

395-696B. SEMINAR COURSE IN PHYSICAL OCEANOGRAPHY. (2 hours.) Theoretical aspects of the general oceanic circulation. PROFESSOR INGRAM

395-697B. MARINE GEOLOGY AND GEOCHEMISTRY. (3 hours). Recent studies relating to the geophysics of the ocean basins and pelagic sedimentation. Geophysical observations and morphology of the ocean basins. Geochemistry of pelagic deposits in relation to terrigenous sources, life processes and sea water composition. Deep sea stratigraphy; methods of correlation; the sedimentary record. PROFESSOR D'ANGLEJAN

*395-698B. TOPICS IN OCEANOGRAPHY. (3 hours.) Interdisciplinary studies of selected topics, including: waves and tides, estuaries, short and long term cycles, factors controlling the vertical distribution of organisms, particulate matter and sedimentation. STAFF

395-721D. SEDIMENTS AND MARINE GEOLOGY. (2 hour seminar lectures and assignments.) Classical and recent research concerning principles of sedimentation, sedimentary environments including deltas, tidal flats, continental shelf and slope, geosynclines, ocean basins, submarine canyons, ocean currents, turbidity currents, sediment geochemistry, reefs, ocean structure. PROFESSORS D'ANGLEJAN AND MOUNTJOY

B 5 DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

B5.1 STAFF

Professors — S. I. VAS *(Chairman)*; B. H. MATHESON; J. W. STEVENSON; W. YAPHE
Associate Professors — Z. ALI-KHAN; C. A. BUTAS; E. C. S. CHAN; P. M. COOKE; J. de VRIES*; P. GILL; L. KAPICA; G. K. RICHARDS*; H. G. ROBSON; R. SIBOO
Assistant Professors — H. ABRAMOVITCH; M. BRAZEAU*; K. D. ELIE*; E. MANKIEWICZ*; J. MENDELSON*; J. GORDON*
Lecturers — W. DION*; S. NOMMIK*; E. WOOD
Demonstrator — C. SHAW*
Teaching Assistants — D. CRISTEANU; L. THERRIEN
*Part-time.

B5.2 REQUIREMENTS

Candidates are required to hold a B.Sc. degree with at least second class Honours or the equivalent in Microbiology and Immunology or the M.D. degree with high standing in Microbiology, Biochemistry and Pathology.

Those who do not meet the above qualifications may be required to take a two-year Master's program in order to complete course requirements.

The clinical laboratory services in bacteriology, virology and mycology are available to candidates as a means of instruction and as a source of material for study.

G5.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates who satisfy the general qualifications above may present themselves for examination for the M.Sc. degree after not less than one full year of research. The following requirements must be satisfied.

(1) Presentation of a satisfactory thesis.

(2) Attendance at Course 528-602D and presentation of at least one seminar topic during the year.

(3) A comprehensive examination in Microbiology and Immunology (Course 528-601D) must be passed.

B5.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Following satisfactory completion of the work for the M.Sc. degree candidates may present themselves for examination for the Ph.D. degree after not less than two full years of research and the presentation of a satisfactory thesis. However, certain other requirements must also be fulfilled:

(1) Attendance at Course 528-702D with the presentation of at least one seminar topic each year.

(2) A comprehensive examination in Microbiology and Immunology (Course 528-701D) must be passed. It is held during the final year of study and at a time not later than six months before submission of the thesis.

B5.3 COURSES FOR HIGHER DEGREES

B5.3.1 ADVANCED UNDERGRADUATE COURSES

528-313B. PARASITOLOGY.
528-315B. THE PATHOGENIC FUNGI. *(Not offered in 1973-74.)
528-421A. SYSTEMATIC BACTERIOLOGY.
528-422B. PATHOGENIC BACTERIA.
528-423A. MICROBIAL PHYSIOLOGY.
528-424A. FUNDAMENTAL VIROLOGY.
528-425B. PATHOGENIC VIRUSES.
528-451B. TECHNIQUES IN MICROBIAL PHYSIOLOGY.

B5.3.2 GRADUATE COURSES

528-601D. COMPREHENSIVE EXAMINATION FOR M.Sc. CANDIDATES.
526-602D. GRADUATE SEMINAR. M.Sc. LEVEL.
528-701D. COMPREHENSIVE EXAMINATION FOR Ph.D. CANDIDATES.
526-702D. GRADUATE SEMINAR. PH.D. LEVEL. (Lectures and discussions once a week. All graduate students are required to participate).
528-703D. CURRENT TOPICS IN MICROBIOLOGY AND IMMUNOLOGY. (Discussion groups).

B 6 DEPARTMENT OF PHYSIOLOGY

Candidates who as undergraduates have satisfactorily completed courses in Physiology to a high standard may present themselves for examination for the M.Sc. degree at the end of one year's graduate work in the Department. Others will have to spend a longer time in preparation, or take a qualifying year. Candidates for the Ph.D. degree must pass a general examination in Physiology and are expected to participate in the Physiology Research Club Seminars. They will be judged principally by the ability they display in research. Candidates for either degree are usually expected to attend at least two of the graduate courses listed below, in their first year. Subsequent course requirements will depend on their field of study.

The main research interests of the Department are at present the chemical and electrical behaviour of the nervous system, electron microscopy and muscle physiology, the release of physiologically active substances from tissues, transplantation reactions and tissue specificity, respiratory mechanics and control of ventilation, studies of sodium excretion in experimental edema, the biophysics of the muscle and of mechanoreceptors, labyrinthine responses to acceleration, enzyme technology, artificial kidneys, the study of the effects of air pollutants on the human lung, hemostasis, fetal and neonatal circulation.

B6.1 STAFF

Professors — J. MILIC-EMILI *(Chairman)*; R. I. BIRKS; T. M. S. CHANG; K. KRNJEVIC; F. C. MacINTOSH; G. MELVILL JONES

Associate Professors — R. F. P. CRONIN; J. H. DIRKS; D. R. FIRTH; P. GOLD; C. POLOSA; P. SEKELJ

Assistant Professors — M. W. COHEN; M. M. FROJMOVIC; V. KLISSOURAS; W. S. LAPP; M. LEVY; M. MACKEY; G. MANDL; J. S. OUTERBRIDGE; A. WECHSLER; R. L. WILLIAMS

Visiting Assistant Professor — K. KIRCHNER (Heidelberg)

Lecturers — M. HAZUCHA; P. WELDON

Associate Members — N. R. ANTHONISEN *(Exp. Medicine)*; M. E. AVERY *(Paediatrics)*; B. A. COOPER *(Exp. Medicine)*; B. O. DUBROVSKY *(Psychiatry)*; E. FALLEN *(Medicine)*; H. L. GOLDSMITH *(Exp. Medicine)*; C. A. GORESKY *(Medicine)*; C. A. LASZLO *(Biomedical Engineering)*; P. T. MACKLEM *(Medicine)*; J. M. McKENZIE *(Exp. Medicine)*; M. M. MORRIS *(Anaesthesia)*; D. H. MOSCOVITCH *(Otoloryngology)*; J. F. SEELY *(Exp. Medicine)*

B6.2 COURSES FOR HIGHER DEGREES

All courses are half courses except for 552-607D which is a full course.

552-602A. EXERCISE PHYSIOLOGY. Offered in conjunction with Faculty of Education. (Not offered in 1973-74.) PROFESSORS KLISSOURAS AND MILIC-EMILI

552-603A. THE NERVOUS SYSTEM: STRUCTURE AND FUNCTION. PART I. (Not offered 1973-74.)

552-604B. THE NERVOUS SYSTEM: STRUCTURE AND FUNCTION. PART II. (Not offered in 1973-74.) PROFESSORS COHEN, MANDL, POLOSA AND KRNJEVIC

552-605B. DYNAMICS AND CONTROL IN PHYSIOLOGICAL SYSTEMS. In conjunction with Biomedical Engineering. PROFESSORS FIRTH AND OUTERBRIDGE

The following courses are offered in conjunction with the Department of Experimental Medicine:

552-606A. ADVANCED APPLIED CARDIOVASCULAR PHYSIOLOGY. PROFESSORS FALLEN AND GOLDSMITH

552-607D. ADVANCED APPLIED RESPIRATORY PHYSIOLOGY. PROFESSORS ANTHONISEN AND BURGESS

552-608A. ADVANCED RENAL AND ELECTROLYTE PHYSIOLOGY. PROFESSORS DIRKS, LEVY AND SEELY

552-609B. MEMBRANES: BIOPHYSICS' PHYSIOLOGY AND CLINICAL APPLICATION. PROFESSOR BLOSTEIN

552-610B. BIOPHYSICS. (Not offered in 1973-74.)

552-612B. PHYSICAL METHODS IN BIOLOGICAL RESEARCH. STAFF

552-613A. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART I. PROFESSORS GOLD AND LAPP

552-614B. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART II. PROFESSORS GOLD AND LAPP

552-615B. PHYSIOLOGY OF BLOOD. PROFESSOR COOPER

B7 DEPARTMENT OF PSYCHOLOGY

Graduate work in the Department of Psychology follows two main lines; experimental-theoretical and applied. Work in experimental-theoretical psychology leads to the M.A., M.Sc. and Ph.D. degrees in human experimental, physiological, personality, social, child, psycholinguistics, quantitative, and psychological research in relation to education. Work in applied psychology leads to the Ph.D. degree in clinical psychology, and the M.Sc. (Applied) degree program is offered in certain particular fields.

Facilities for advanced research in a variety of fields are available within the Department itself. In addition, arrangements with the Departments of Psychology at the Allan Memorial Institute, Montreal Children's Hospital, Queen Mary Veterans' Hospital, the Douglas Hospital, and Jewish General Hospital, permit graduate students to undertake research in the hospital setting.

For full information about all programs, financial aid, and for application forms, contact the Graduate Admissions Secretary, Department of Psychology, McGill University, P.O. Box 6070, Montreal 101, Canada. Telephone 392-5742.

B7.1 STAFF

Professors — G. A. FERGUSON *(Chairman);* D. BINDRA; D. G. DOEHRING; VIRGINIA DOUGLAS; D. O. HEBB; W. E. LAMBERT; R. B. MALMO; R. MELZACK; BRENDA MILNER; P. M. MILNER; E. G. POSER; M. S. RABINOVITCH

Associate Professors — A. S. BREGMAN; M. CORBALLIS; J. A. CORSON; D. C. DONDERI; G. L. GEIS; M. L. GOLDSCHMID; R. KANUNGO; J. MACNAMARA; A. A. J. MARLEY; R. O. PIHL; J. O. RAMSAY; MURIEL STERN; G. R. TUCKER; BLOSSOM WIGDOR

Assistant Professors — J. F. CAMPBELL; SUSAN CAMPBELL; C. E. PASCAL; W. E. PIPER; T. R. SHULTZ; D. TAYLOR; N. WHITE

Lecturer — OLGA FAVREAU

Sessional Lecturers — B. BLIDSTEIN; MARGARET GOLICK; R. KACHANOFF; A. SCHLEIPER

Clinical Consultants — N. GREENBERG; ERIKA GUTBRODT; A. SURKIS

B7.2 REQUIREMENTS

Admission to graduate work will depend on an evaluation of the student's research interests and aptitude for original contributions to knowledge or for professional contributions in the applied field. The usual requirement for admission is an honours or majors degree (B.A. or B.Sc.) in Psychology. This includes an introductory course plus six full courses (each equivalent to six semester hours). Experimental psychology, the theoretical development of modern ideas in psychology, and statistical methods as applied to psychological problems (equivalent to an introductory course) are essential. A knowledge of elementary physiology, physics or chemistry, and modern developments in other related biological or social sciences is desirable. An applicant who holds a Bachelor's degree but who has not met these usual requirements should consult a faculty member in his or her area of interest to determine which (if any) courses must be completed before the application can be considered. A student with insufficient preparation may qualify for graduate work by registering in the Faculty of Arts or the Faculty of Science, and following an appropriate course of study. Such registration requires the permission of the Department; the Department will not recommend the registration of qualifying students in the Faculty of Graduate Studies and Research.

NOTE: Applicants should submit to the Graduate Admissions Secretary by February 1: a completed application form, two copies of the personal academic background form, two copies of all university transcripts, two letters of recommendation, Miller Analogies and/or Graduate Record Examination scores, and a personal letter, outlining their experience, interests and objectives in psychology. Applicants should note that the deadline for many scholarships and fellowships is two to three months earlier than the February deadline.

B7.2.1 REQUIREMENTS FOR M.A. AND M.Sc. DEGREES

Candidates must demonstrate a sound knowledge of modern theory, of its historical development, and of the logic of statistical methods as used in psychological experiments. They will be expected to have an understanding of the main lines of current work in other than their own particular field of specialization.

All candidates must take courses 204-650A, 204-651B and 204-660D and in addition any other course specified by the Department. The primary concern of the candidate,

however, is his thesis. For this the exploratory work, at least, should get under way early in the year. A comprehensive written or oral examination will be held which, in conjunction with the thesis itself, will determine the candidate's final standing for the degree.

B7.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

The candidate for the Ph.D. degree in the theoretical-experimental program must demonstrate a broad scholarship, mastery of current theoretical issues in psychology and their historical development, and a detailed knowledge of his special field. Preliminary examinations will be held at two stages; one at the conclusion of the Master's year and one at the conclusion of the following year. These examinations may be written, or oral, or both, at the discretion of the Department. These examinations will include a general paper on modern theoretical issues and history, and a special paper on one of the following: comparative and physiological psychology, learning and perception, social psychology and personality, measurement, and developmental psychology.

Candidates for the Ph.D. degree in clinical psychology must demonstrate a high standard of scholarship in psychology and aptitude for the professional application of psychological knowledge. The clinical program is designed primarily to train senior personnel for work in hospitals and clinics. A number of avenues of specialization are, however, possible. Some students may wish to prepare themselves for careers in university teaching or clinical research; others may have an interest in behaviour disorders in the fields of developmental or educational psychology. The time necessary to attain the degree is four years beyond the B.A. or B.Sc. degrees. No intermediate or terminal M.A. or M.Sc. degrees are awarded to students in the Ph.D. clinical program. All students are required to write a thesis and demonstrate research capabilities.

The Department of Psychology does not ordinarily require an examination in a foreign language.

B7.3 COURSES AND SEMINARS FOR HIGHER DEGREES

204-454D. LABORATORY METHODS IN PSYCHOBIOLOGY.

204-455D. RESEARCH METHODS IN PSYCHOLINGUISTICS.

204-601D. Reference number for comprehensive examination written by candidates for the M.A., M.Sc., or M.Sc. (Appl.) degree.

204-615D. INTELLIGENCE AND PERSONALITY. (3 hours.)

204-630A. PSYCHOPATHOLOGY. (1½ hours.)

*204-635D. ADVANCED EDUCATIONAL PSYCHOLOGY. (3 hours.)

204-640D. DESIGNING, DEVELOPING AND EVALUATING INSTRUCTIONAL SYSTEMS. (3 hours.)

204-641D. BEHAVIOUR DEVIATIONS. Appraisal and Modification. (3 hours.)

204-650A. ADVANCED STATISTICS I. A course in advanced statistics with specialization in experimental design. (3 hours.)

204-651B. ADVANCED STATISTICS II. A course in advanced statistics with specialization in regression techniques. (3 hours.)

204-660D. PSYCHOLOGICAL THEORY. (3 hours.) Seminar designed as an introduction to more advanced graduate courses.

204-670D. RESEARCH PROBLEMS IN CLINICAL PSYCHOLOGY. (1 hour.)

204-690D. COMPUTERIZED LABORATORY METHODS IN PSYCHOLOGY. (3 hours.)

204-701D. Reference number for comprehensive preliminary Ph.D. examinations.

204-702F. SUMMER INTERNSHIP — JUNIOR.

204-703F. SUMMER INTERNSHIP — SENIOR.

204-704D. SPECIALIZED PRACTICUM.

204-705D. Reference number for research project of M.Sc. (Appli.) students.

204-710D. ADVANCED EXPERIMENTAL PSYCHOLOGY. (2 hours.)

204-715D. COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY. (2 hours.)

204-740D. QUANTITATIVE METHODS IN PSYCHOLOGY. (2 hours.)

204-760D. PROBLEMS OF LEARNING AND PERCEPTION. (3 hours.)
204-770D. ADVANCED SEMINAR ON CLINICAL PROBLEMS. (2 hours.)
204-780D. SPECIAL TOPICS IN CLINICAL PSYCHOLOGY. (2 hours.)

B 8 WILDLIFE BIOLOGY

Qualified students interested in undertaking graduate studies in the area of Wildlife Biology should consult the Chairman, Department of Entomology, and/or Professor J. R. Bider, Department of Woodlot Management, Macdonald College. Special programs of study are available to such students.

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "C" HUMANITIES

1973-74

NOTE: Courses, marked with an asterisk (*), are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Fall and Spring term course.

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

Legal Deposit II 73.

C1 DEPARTMENT OF ART HISTORY

C1.1 STAFF

Professors — W. O. JUDKINS *(Chairman)*; GEORGE GALAVARIS *(Director of Graduate Studies)*

Associate Professor — R. N. BERTOS

Assistant Professors — ROSEMARIE BERGMANN; W. E. MITCHELL

C1.2 REQUIREMENTS

C1.2.1 ADMISSION

For admission to the M.A. or Ph.D. programs, candidates are normally expected to have a B.A. degree with Honours, either in Art History alone or in Art History and one other related subject — or the equivalent, i.e. one-third to one-half of the candidate's undergraduate courses in an integrated program, passed with appropriate standing. For candidates from institutions not offering such undergraduate programs, provision is made for preliminary studies qualifying the candidate for admission to graduate work. Courses in studio practice do not count. Please see, also, the language requirements given under the degree programs below.

C1.2.2 REQUIREMENTS FOR THE M.A. DEGREE

1) Ten half-courses approved by the Department, six in the first graduate year.
2) Written *general* examination on the History of Art.
3) Oral examination on that one of the following five fields to which the proposed thesis topic belongs: Ancient, Mediaeval, Renaissance, Baroque – to 1750, Modern – from 1750.
4) Thesis on a topic approved by the Department from the candidate's chosen field of specialization.

Language requirements for the M.A. degree: reading knowledge of English and French and a minimum of one additional approved classical or modern language, before admission to the second year of the M.A. program.

C1.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

Normally, the first year of the Ph.D. program will be spent fulfilling the first-year requirements of the M.A. degree. In appropriate cases the Department may, at the end of the first year, advise the student to bypass the M.A., enter the second year of the Ph.D. program and proceed to the Ph.D. qualifying examinations consisting of, 1) a written *comprehensive* examination on the History of Art, and 2) an oral examination on one of the following five fields of specialization chosen by the candidate: Ancient, Mediaeval, Renaissance, Baroque – to 1750, Modern – from 1750. These are normally taken at the end of the second year.

The candidate may be permitted or advised to spend one of the three resident years required by Graduate Faculty regulation at another, approved university.

Only with the permission of the Department can those holding the M.A. degree proceed to the Ph.D. qualifying examinations, and those who have passed the Ph.D. qualifying examinations, or their equivalent, proceed to the doctorate.

Language requirements for the Ph.D. degree: reading knowledge of three modern languages and at least one classical language, approved by the Department.

The requirements for the Ph.D. degree are fulfilled with the completion of the dissertation and its successful oral defence. The Department is prepared to direct dissertations in the following fields: Ancient, Byzantine, Mediaeval, Renaissance (Italian and Northern) and others, by special arrangement, wherein adequate supervision and resources can be provided.

C1.3 COURSES FOR HIGHER DEGREES

C1.3.1 GRADUATE COURSES

Lists of the courses being offered in the session under consideration are available from the Department on request.

123-611A or B. GREEK AND ROMAN ARCHAEOLOGY.
123-612A or B. MEDIAEVAL ART AND ARCHAEOLOGY.
123-613A or B. ART OF THE ITALIAN RENAISSANCE.
123-614A or B. NORTHERN RENAISSANCE ART.
123-615A or B. BAROQUE ART AND ARCHITECTURE.
123-616A or B. 19TH CENTURY PAINTING AND SCULPTURE.
123-617A or B. CONTEMPORARY ART AND CRITICISM.
123-621A or B. STUDIES IN GREEK AND ROMAN SCULPTURE.
123-622A or B. SEMINAR IN THE ART OF BYZANTIUM.
123-623A or B. PROBLEMS IN WESTERN MEDIAEVAL ARCHITECTURE AND SCULPTURE.
123-624A or B. STUDIES IN MANUSCRIPT ILLUMINATION.
123-631A or B. ARTISTIC THEORY IN THE RENAISSANCE.
123-632A or B. GREEK MYTHOLOGY IN ITALIAN RENAISSANCE ART.
123-633A or B. STUDIES IN THE GRAPHIC ARTS.
123-634A or B. RESEARCH IN MODERN ARCHITECTURE: —1750 TO THE PRESENT.
123-635A or B. SEMINAR IN URBAN PLANNING AND TOPOGRAPHY.
123-636A or B. STUDIES OF DRAWINGS.
123-637A or B. PROBLEMS IN THE HISTORY OF TASTE AND CRITICISM.

C1.3.2 FOURTH YEAR UNDERGRADUATE (FULL) COURSES FOR WHICH GRADUATE CREDIT IS GIVEN

123-413D. WESTERN MEDIAEVAL PAINTING.
123-430D. EVOLVING CONCEPTS OF THE DISCIPLINE OF ART HISTORY.
123-440D. THE VISUAL LANGUAGE OF ARTISTIC EXPRESSION.

C 2 DEPARTMENT OF CLASSICS

NOTE: For detailed information concerning the M.A. and Ph.D. Degrees in Classics, please inquire of the Department of Classics.

C2.1 STAFF

Professors — C. D. GORDON; P. F. McCULLAGH; ALBERT SCHACHTER *(Chairman)*
Associate Professors — ANNA FARMAKIDES; P. V. TOMASZUK; PAOLO VIVANTE; G. M. WOLOCH
Assistant Professors — C. W. DEARDEN; J. M. FOSSEY; M. J. SILVERTHORNE; G. L. SNIDER

C2.2 GRADUATE COURSES IN CLASSICS

A limited number of courses and seminars is offered each year. Course content is generally speaking fitted to the requirements of individual students.

Numbering System for Courses

The second digit after the dash (—) signifies the content of the courses:
1 — Greek Poetry, 2 — Greek Prose, 3 — Latin Poetry, 4 — Latin Prose, 5 — Non-literary, 6 — Non-literary, 7 — Reading Course, 8 — Reading Course.

The third digit signifies the session in which the course is offered, viz. 3 signifies 1973-74.

The following numbers have been reserved for 1973-74. From them the courses to be given in 1973-74 will be chosen. Note that the numbers of courses which are actually given will be followed by the letters A, B, or D, depending on whether they are half or full courses.

114-613 and -713. GREEK POETRY (e.g. drama, lyric).

114-623 and -723. GREEK PROSE (e.g. historians, orators, philosophers).

114-633 and -733. LATIN POETRY (e.g. drama, elegy, epic).

114-643 and -743. LATIN PROSE (e.g. historians, orators, philosophers).

114-653 and -753. NON-LITERARY SUBJECTS (e.g. archaeology, epigraphy, history, religion, philosophy).

114-663 and -763. NON-LITERARY SUBJECTS (e.g. archaeology, epigraphy, history, religion, philosophy).

114-673 and -773. INTENSIVE READING COURSES.

114-683 and -783. INTENSIVE READING COURSES.

In addition, certain courses listed in the Undergraduate Calendar of the Faculty of Arts may be taken by Graduate students, with the permission of the Department.

C 3 DEPARTMENT OF ENGLISH

C3.1 STAFF

Professors — D. F. THEALL *(Chairman);* PETER BUITENHUIS; C. D. CECIL; L. DUDEK; JOYCE HEMLOW*; ALAN HEUSER; ALEC LUCAS; HUGH MacLENNAN; A. E. MALLOCH; H. A. McPHERSON

Associate Professors — MICHAEL BRISTOL; MARGARET BRUCE; DESMOND COLE; D. C. FRYE; IRWIN GOPNIK; SLAVA KLIMA; GEORGE MATHEWSON; P. H. OHLIN; P. H. PIEHLER; MARTIN PUHVEL; JOHN RIPLEY; DARKO SUVIN; B. F. WEEMS III; W. C. WEES

Assistant Professors — H. ANDERSON; BHARATI BLAISE; W. T. BOOTH *(Assistant to the Chairman);* D. F. BOUCHARD; ABBOTT CONWAY; M. DAVISON; M. DORSINVILLE; L. T. DUER; L. T. ELLIOTT; A. GOLDBERG; C. A. E. HEPPNER; W. P. HILLGARTNER; LEANORE LIEBLEIN; Y. LINDEMAN; RONALD REICHERTZ; BRIAN ROBINSON; JOSEPH RONSLEY; D. S. RUBIN; MARC SIMON; ROBERT TEMBECK; DAVID WILLIAMS

Lecturer — MARIANNE LAFON

Special Lecturer — J. LANGUIRAND

**Part-time.*

C3.2 REQUIREMENTS

C3.2.1 APPLICATIONS

Letters of recommendation are required of *all* applicants. Applications close March 31, 1974. Completed applications and supporting material for persons seeking Teaching Fellowships should reach the Department by January 31, 1974.

C3.2.2 THE M.A. DEGREE

Candidates follow a program of advanced courses and submit a thesis (approximately 15,000 words) on an approved topic. Candidates admitted from an Honours program in English (or an equivalent) may complete the degree in one year. Persons with insufficient English courses may apply for a Qualifying year. Further information may be obtained from the departmental office.

C3.2.3 THE Ph.D. DEGREE

The number of entrants to the doctoral program is severely limited. Highly qualified applicants are admitted to the first year from an Honours program in English (or its equivalent). Qualified applicants who have already completed a Master's degree in English are admitted to the second year of the program. Two years are normally devoted to preparation for comprehensive examination, and a third year to research. The language requirement must be fulfilled before comprehensives may be undertaken.

It is the policy of the Department to urge candidates to complete the Ph.D. program within four years. A candidate intending to submit the thesis to meet the deadline for Spring Convocation must give notice of this intention before January 1. A candidate intending to meet the deadline for Autumn Convocation must give such notice before May 1. A detailed description of the program may be obtained from the departmental office; see also section 3 of the Faculty regulations.

C3.3 COURSES FOR HIGHER DEGREES

The following is a list of courses offered on a rotational basis. A list of courses to be given in 1973-74 will be available from the departmental office after 5 September 1973.

C3.3.1 COURSES PRIMARILY FOR M.A. CANDIDATES

(also for Ph.D.I students, and for fourth-year undergraduates with special permission)

120-337D. CROSSCURRENTS IN 18TH CENTURY ENGLISH AND EUROPEAN LITERATURES. *(Prerequisite:* A reading knowledge of French.)

120-602A. BIBLIOGRAPHY.

120-603B. PREPARATORY STUDIES. In 1974, for the M.A. thesis.

120-604A. OLD ENGLISH LANGUAGE AND PROSE LITERATURE. Prose included in Sweet, *Anglo-Saxon Reader.*

120-605B. OLD ENGLISH HEROIC POETRY. Emphasis on *Beowulf* (ed. Klaeber). Open to students who have taken English 120-604A, or its equivalent elsewhere.

120-608A. CHAUCER. A study of *The Canterbury Tales,* their sources and analogues.

120-609B. CHAUCER. A study of the *Romaunt of the Rose,* the dream-vision poems, and *Troilus and Criseyde.*

120-610A. DEVOTIONAL LITERATURE.

120-611D. LITERARY CRITICISM.

120-612D. THE TRANSITION FROM THE MIDDLE AGES TO THE RENAISSANCE.

120-615D. SHAKESPEARE.

120-616D. ELIZABETHAN AND JACOBEAN DRAMA.

120-640D. THE AMERICAN NOVEL.

120-650D. 19TH CENTURY THOUGHT.

120-660D. STUDIES IN SCIENCE FICTION.

120-661A. SCIENCE FICTION SEMINAR.
120-665D. STUDIES IN AMERICAN LITERATURE AND INTELLECTUAL HISTORY.
120-670D. COMPARATIVE LITERARY STUDIES.
120-680D. CANADIAN LITERATURE.
120-687D. INTERMEDIATE RESEARCH SEMINAR.
120-689D. INTERMEDIATE RESEARCH SEMINAR.
120-690D. INTRODUCTORY SEMINAR OF SPECIAL STUDIES.

C3.3.2 COURSES PRIMARILY FOR Ph.D. CANDIDATES

120-701D. DOCTORAL COMPREHENSIVE EXAMINATION.
120-702B. EDITING. In 1974, editing in relation to the Burney collection. *(Prerequisite:* English 120-602A, Bibliography.)
120-706B. MIDDLE ENGLISH LITERATURE. *Gawain and the Green Knight* (ed. Tolkien and Gordon) and *Pearl* (ed. Gordon).
120-707A. THE ARTHURIAN LEGEND. Studies in the origin and development of the Arthurian legend. Writers such as Geoffrey of Monmouth, Chrétien de Troyes, and Marie de France are studied in translation.
120-708B. ALLEGORY.
120-710D. STUDIES IN RENAISSANCE PROSE.
120-712A. MARLOWE.
120-714A. SPENSER.
120-716A. SPECIAL STUDIES IN SHAKESPEARE.
120-718B. BEN JONSON.
120-722D. MILTON.
120-724B. THE COMEDY OF MANNERS.
120-726A. DEFOE AND SWIFT.
120-727B. POPE.
120-728A. JOHNSON AND HIS CIRCLE.
120-730A. WORDSWORTH AND COLERIDGE.
120-731D. 19TH CENTURY STUDIES.
120-732A. ARNOLD.
120-733B. THE VICTORIAN NOVEL.
120-734A. HENRY JAMES.
120-735D. SPECIAL STUDIES IN CRITICISM.
120-736D. HOPKINS, YEATS, AND ELIOT.
120-737A. MODERN AMERICAN DRAMA.
120-740D. STUDIES IN SYMBOLISM.
120-745D. SEMINARS FOR Ph.D. STUDENTS.
120-746A. THE 19TH CENTURY.
120-756D. DRAMA OF THE 20TH CENTURY.
120-760A. JAMES JOYCE AND HIS MILIEU.
120-761D. 20TH CENTURY NOVELISTS.
120-765D. THEORY AND PRACTICE OF TRANSLATION.
120-770D. STUDIES IN AMERICAN LITERATURE.
120-775D. RECENT AMERICAN AND CANADIAN LITERATURE. In 1973-74, *The Emergence of Modernism in Canada.*
120-780D. ANALOGY AND METAPHOR. The evolution of literary forms in the light of recent physical and psychological theory.
120-781D. STUDIES IN COMMUNICATIONS
120-784D. LANGUAGE, LINGUISTICS AND LITERATURE.
120-785A. STUDIES IN LITERARY THEORY.
120-786D. ADVANCED RESEARCH SEMINAR.
120-787D. ADVANCED RESEARCH SEMINAR.
120-789D. ADVANCED SEMINAR OF SPECIAL STUDIES.
-790D. DOCTORAL LANGUAGE EXAMINATION.

C3.4 COMMUNICATIONS STUDIES

Inquiries and applications should be addressed to Professor Hugo McPherson.

C 4 DEPARTMENT OF FRENCH LANGUAGE AND LITERATURE

C4.1 STAFF

Professors — J. G. NICHOLSON *(Chairman)*; G. P. COLLET; J. ETHIER-BLAIS; J. E. L. LAUNAY

Associate Professors — M. ANGENOT; M. T. CARTWRIGHT; YVONNE CHAMPIGNEUL; GIUSEPPE DI STEFANO; FRANCIS FURLAN; H. C. JONES; RUSSELL McGILLIVRAY; J. C. MORISOT; M. RABOTIN; MARIE-THERESE REVERCHON; J. TERRASSE; L. C. VAN DELFT; ROBERT VIGNEAULT

Assistant Professors — J. P. BOUCHER; J. P. DUQUETTE; GEORGES POMET; F. RICARD; ANDRE SMITH; D. W. STEEDMAN

C4.2 REQUIREMENTS

C4.2.1 ADMISSION

C4.2.1.1 The Qualifying Year

Promising candidates with gaps in their previous preparation may be admitted to a *Qualifying Year* designed to bring them up to the desired level of competence. Successful completion of a Qualifying Year will secure admission into the M.A. course held in the session following such completion. Only full-time students are admitted to a Qualifying Year.

C4.2.1.2 Graduate Record Examination

All applicants for admission to the Department originating from a College or University in the U.S. must submit *Graduate Record Examination scores*. Applications will not be examined unless this additional information is supplied.

C4.2.1.3 English Requirement

All M.A. and Ph.D. candidates must submit evidence of competence in English, or take a Department test in that language.

C4.2.2 REQUIREMENTS FOR THE M.A. DEGREE

All full-time M.A. students registering for the first time in September 1973 will take 4 full approved courses (or their equivalent).

Degree requirements will be met *in toto* through the submission of a thesis on a topic approved by the Department and researched under the direction of a departmental thesis director. Faculty regulations allow such candidates three years, after completion of their course work, for submission of their thesis. While the thesis is in preparation, candidates must register for each session in September both with the Department and with the Faculty. They pay fees at special rates depending on residence and University Library use.

Candidates may be admitted to the M.A. course as full-time or half-time students, with appropriate adjustment of fees.

C4.2.2.1 Regulations for the M.A. Degree Taken in the French Summer School

All work carried on towards an M.A. degree in the French Summer School is under the control and supervision of the Department of French in the Faculty of Graduate Studies of the University. For detailed information about courses and regulations, please refer to current *French Summer School Announcement.*

C4.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

Minimum admission requirement for the Ph.D. course is a first degree equivalent to a McGill B.A. degree with Honours in French. Applicants should submit to the Department in good time transcripts of college grades and Graduate Record Examination, evidence of their competence in oral and written French, and letters of recommendation.

The program consists of a minimum of three years' work, together with a thesis. A candidate registering in 1973 will normally satisfy the requirement for the first year by taking four full courses, or its equivalent. Completion of that program will allow students unable to proceed to the Ph.D. degree to obtain the M.A. degree subsequently.

Candidates holding an M.A. degree in French from a recognized University may be admitted to second year. In that year a student is expected to take four approved graduate courses, or its equivalent.

The Preliminary Examination is normally taken in the third year. Candidates are not permitted to sit that examination before they have passed competence tests in Latin or German, one other approved modern foreign language and, eventually, English. Departmental requirements of special concern to Ph.D. students are obtainable from the departmental Secretariat.

After passing their preliminary examinations, candidates are allowed five years to submit a satisfactory thesis, on a subject approved by the Department and prepared under the direction of a member of the departmental staff. After the thesis has been approved by Faculty appointed examiners, an oral defence must take place in Montreal.

C4.3 COURSES FOR HIGHER DEGREES

C4.3.1 OPEN TO M.A. AND Ph.D. CANDIDATES

Subject to Departmental Regulations

126-004D. FRENCH READING COURSE. — STAFF

126-606A. STYLISTIQUE. — PROFESSOR POMET

126-610D. TRADUCTION LITTERAIRE. — PROFESSOR REVERCHON

126-617B. LE "TRISTAN" MEDIEVAL. — PROFESSOR DI STEFANO

126-618A. VILLON. — PROFESSOR DI STEFANO

126-619B. LA RENAISSANCE EN FRANCE. — PROFESSOR DI STEFANO

126-625B. MONTAIGNE. — PROFESSOR VAN DELFT

126-633A. MOLIERE. — PROFESSOR McGILLIVRAY

126-637D. FORMATION DES THEORIES ESTHETIQUES AU XVIIe SIECLE. — PROFESSOR CHAMPIGNEUL

126-641B. EVOLUTION DES FORMES THEATRALES AU XVIIIe SIECLE. — PROFESSOR CARTWRIGHT

126-643B. VOLTAIRE. — PROFESSOR FURLAN

126-645B. LE THEATRE DE MARIVAUX. — PROFESSOR TERRASSE

126-646A. LE MATERIALISME AU XVIIIe SIECLE. — PROFESSOR TERRASSE

126-647A. DIDEROT. — PROFESSOR CARTWRIGHT

126-650D. STENDHAL. — PROFESSOR LAUNAY

126-652B. VICTOR HUGO: LA LEGENDE DES SIECLES. — PROFESSOR MORISOT

126-654B. FLAUBERT. — PROFESSOR DUQUETTE

126-656B. BARBEY D'AUREVILLY. — PROFESSOR BOUCHER

126-658D. DE LAUTREAMONT AU DADAISME: LE MERVEILLEUX QUOTIDIEN. — PROFESSOR JONES

126-660A.	VALERY.	PROFESSOR RICARD
126-662B.	SARTRE ET CAMUS.	PROFESSOR POMET
126-664A.	LOUIS-FERDINAND CELINE.	PROFESSOR SMITH
126-667A.	IONESCO.	PROFESSOR VAN DELFT
126-669D.	MAURIAC, ROMANCIER, AUTEUR DRAMATIQUE ET PAMPHLETAIRE.	PROFESSOR COLLET
126-671A.	LA LITTERATURE FANTASTIQUE.	PROFESSOR FURLAN
126-674A.	LE MYTHE LITTERAIRE DE DON JUAN, DE MOLIERE A NOS JOURS.	PROFESSOR MORISOT
126-675B.	LA CRITIQUE LITTERAIRE DE G. LANSON A R. BARTHES.	PROFESSOR SMITH
126-677B.	L'ŒUVRE CRITIQUE DE MAURICE BLANCHOT.	PROFESSOR VIGNEAULT
126-679D.	L'ESSAI ET LE PAMPHLET.	PROFESSOR ANGENOT
126-682A.	ROMAN QUEBECOIS.	PROFESSOR ETHIER-BLAIS
126-685A.	JACQUES FERRON ROMANCIER.	PROFESSOR BOUCHER
126-687D.	GABRIELLE ROY.	PROFESSORS DUQUETTE AND RICARD
126-689A.	PRESENCE DE L'ENFANCE DANS LE NOUVEAU ROMAN QUEBECOIS.	PROFESSOR VIGNEAULT
126-690B.	ATELIER DE CREATION LITTERAIRE.	PROFESSOR ETHIER-BLAIS.

C 5 DEPARTMENT OF GERMAN

C5.1 STAFF

Professor — A. ARNOLD *(Chairman)*

Associate Professors — M. BIRCHER; V. R. BLOCK; T. GOLDSMITH-REBER *(on leave)*; A. HSIA; H. J. MAITRE; J. SCHMIDT; I. SCHUSTER

Assistant Professors — E. GALLATI *(on leave)*; E. LACH; H. RICHTER

Visiting Professor — H. BOESCHENSTEIN

C5.2 REQUIREMENTS

In order to be admitted to graduate work in German the candidate must have a B.A. degree with Honours or Joint Honours in German from McGill University, or hold an equivalent degree from another college or university of recognized standing, or have completed a course of studies of equivalent value at such an institution.

Candidates who do not possess these prerequisites may, with special permission, enter the department as qualifying students for the purpose of completing these preliminary studies. In order to be admitted to graduate work in German, the candidate must have

a) considerable fluency in German (all lectures are in German),

b) a good knowledge of German literature from the Baroque period to the 20th century,

c) a good knowledge of the History of the German Language. Students may satisfy this requirement by completing German 129-500A, 129-501B and/or 129-510A, 129-511B during their first graduate year at McGill.

Graduate students holding a Teaching Assistantship or who are otherwise employed will normally not be allowed to take more than four half courses a year. Teaching Assistants are required to attend a seminar on Teaching Methods. If a students knowledge of English is adjudged inadequate, he may be required to attend an approved course in that language. All graduate students are required to attend, each session, the staff-student colloquium on special problems.

C5.2.1 REQUIREMENTS FOR THE M.A. DEGREE

At least the equivalent of four full courses must be taken. Students are encouraged to complete about one quarter of their course load in another discipline.

Students are not, as a rule, able to earn the M.A. degree in less than two years. They are expected to begin work on their thesis after the end of the first session. The thesis should be roughly 80 to 100 pages in length, should reveal ability to organize the material under discussion, and should be succinct and relevant. After the session in which they complete their course work, students are required to pass a comprehensive examination.

C5.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

After completing the B.A. degree with Honours or the equivalent, a student has normally to take the equivalent of eight full courses. After completing the M.A. degree or its equivalent, a student must take at least the equivalent of four full courses. Students are encouraged to complete about one quarter of their course load in another discipline.

After the session in which a candidate completes his course work, he will be required to pass a comprehensive examination. Candidates will be required to pass a reading test in one language other than English and German. Usually this language is French, but for those specializing in German Literature before 1600 the test may be in Latin.

Original research leading to new insights is a prerequisite for the acceptance of a Ph.D. thesis. After acceptance of the thesis, the candidate has to defend his thesis before a committee.

As a rule, it will take a candidate at least four years after the B.A. degree to complete the requirements for the Ph.D. degree. Students who have not spent an appreciable length of time in a German speaking country are advised to spend one year at a University in such a country, for which credit may be given in the above program.

C5.3 COURSES FOR HIGHER DEGREES

Courses are normally given in the form of seminars, and may be rated as full or half courses. Each year, the Department publishes a list of those offerings which will be available in the ensuing session. These lists are available from the departmental Secretary or from Graduate Faculty, normally in the month of May.

Each year the Department offers courses in some of the following areas:

129-605-09, 705-09A, B. MEDIAEVAL GERMAN LITERATURE.
129-610-14, 710-14A, B. GERMAN LITERATURE IN THE AGE OF THE RENAISSANCE AND THE REFORMATION.
129-615-19, 715-19A, B. GERMAN LITERATURE OF THE BAROQUE AND ROCOCO.
129-620-24, 720-24A, B. GERMAN LITERATURE OF THE ENLIGHTENMENT.
129-625-29, 725-29A, B. GERMAN LITERATURE OF THE STURM AND DRANG PERIOD.
129-630-34, 730-34A, B. GERMAN CLASSICISM.
129-635-39, 735-39A, B. GERMAN ROMANTICISM.
129-640-44, 740-44A, B. GERMAN REALISM AND EARLY NATURALISM.
129-645-49, 745-49A, B. GERMAN LITERATURE IN THE 20TH CENTURY.
129-650-54, 750-54A, B. GERMAN LINGUISTICS AND PHILOLOGY.
129-655-59, 755-59A, B. LITERARY THEORY AND CRITICISM.
129-660-64, 760-64A, B. COMPARATIVE LITERATURE STUDIES.
129-665-69, 765-69A, B. SEMINAR ON TEACHING METHODS.
129-670-74, 770-74A, B. STAFF-STUDENT SEMINAR ON LITERARY PROBLEMS.
129-675-79, 775-79A, B. RESEARCH SEMINAR.

C5.3.1 Ph.D. LANGUAGE TESTS

For Ph.D. candidates who are required to pass a reading test in German the following course is offered.

129-004D. GERMAN. READING COURSE. (2 hours; *Text:* C. V. Pollard, *A Key to German Translation:* Univ. of Austin, Texas.) Method and Practice of Translation. This course is intended for students preparing to fulfil the language requirement for the Ph.D. degree. DR. BLOCK

C 6 INSTITUTE OF ISLAMIC STUDIES

The Institute offers courses, and undertakes to direct research in preparation for the M.A. and Ph.D. degrees in Islamic Studies. Two years of resident study are normally required for the M.A. degree, five for the Ph.D. degree.

The Institute is concerned with the faith of Muslims, and with the Islamic tradition involving a society and a civilization to which in the past it has given rise and to which in the present it is related. The Institute's special emphasis is on the faith as a contemporary and living force; and on the major change through which the civilization and society are currently going. It would seek such understanding as will enable outsiders to observe those changes intelligently, Muslims to participate in them intelligently, and both to communicate.

Candidates for degrees in Islamic Studies may, with the consent of those departments, be permitted or required to take relevant courses offered by the Departments of History, Economics and Political Science, Philosophy, Comparative Religion, etc. In special cases these departments also recognize participation in relevant courses offered by the Institute as contributing to their own advanced degrees. Such participation by students from other departments is welcomed by the Institute.

The Institute stresses competence in language. At the master's level, one Islamic language is required, normally Arabic. For doctorate work, all students, Muslim and Western, must have a reading knowledge of *either* French or German, preferably both (for access to Western scholarship on Islam) *and* two Islamic languages, of which one will normally be Arabic.

C6.1 STAFF

Professors — C. J. ADAMS *(Director);* AHMAD ABU-HAKIMA; NIYAZI BERKES; TOSHIHIKO IZUTSU

Associate Professors — DONALD P. LITTLE *(Assistant Director);* HERMANN LANDOLT; RICHARD N. VERDERY *(on leave 1973-74)*

Lecturer — SAJIDA ALVI

Research Associate — MEHDI MUHAQQIQ

Librarian — MUZAFFAR ALI

Specialist Librarians — JERZY GUTKOWSKI; JAN WERYHO

C6.2 COURSES FOR HIGHER DEGREES

397-602D. SURVEY OF ISLAMIC PHILOSOPHY. (3 hours.) A history of the attempts of Muslim thinkers to adapt Greek philosophy to Islamic revelation; study of the Translation Movement, the Mu'tazila, and the rise of Kalam; readings in al-Kindi, al-Farabi, Ibn Sina, Ibn Rushd, al-Razi, and other important Muslim philosophers. PROFESSOR IZUTSU

397-603A. INTRODUCTION TO RESEARCH MATERIALS FOR ISLAMIC STUDIES. (1 hour.) A practical introduction to the materials academically available for these studies. Some preliminary discussion of research methods, of the preparation of reports and essays; documentation; transliteration. Particular attention is given to the special reference books and serials used in the field. MR. ALI

397-604D. INTRODUCTION TO THE ISLAMIC TRADITION. (3 hours.) A course to introduce the uninitiated student to major aspects of the Islamic tradition: Jahiliyah times, the Prophet, Qur'an, Hadith, Kalam, Shari'ah, Falsafah, Tasawwuf, Shi'ah and the sects, Institutions, and Modern Developments. Emphasis is given to the principal Islamic and Western sources in each of these areas. PROFESSOR ADAMS

397-610D. HISTORY OF ISLAMIC CIVILIZATION: THE CLASSICAL PERIOD. (3 hours.) The origins of the early Islamic state in Arabia and the Umawi Caliphate. The growth of an Islamic civilization, and the 'Abbasi Empire until the Seljuk period. The rise of the Fatimis. The Caliphate of Cordoba. PROFESSORS LITTLE AND VERDERY

397-611D. HISTORY OF ISLAMIC CIVILIZATION: THE MEDIAEVAL PERIOD. (3 hours.) The Seljuks, and the mediáeval synthesis. The Moors in Spain and North Africa. The Crusades. The Mongols and the destruction of the Baghdad Caliphate. The Mamluk, Persian, Turkish and Indian Empires until 1700. PROFESSOR LITTLE

397-614D. THE HISTORY OF ISLAMIC INDIA. The Arabs in India; the establishment of the Delhi Sultanate; the interaction of Islam and Hinduism. The Mughals: political history; social, intellectual, and religious trends. The fall of the Mughals and the end of Muslim rule in India. PROFESSOR S. ALVI

397-621D. INTRODUCTORY ARABIC.

397-622D. LOWER INTERMEDIATE ARABIC.

397-623D. HIGHER INTERMEDIATE ARABIC.

397-625D. ADVANCED ARABIC. (3 hours.) Critical reading of texts in a particular field; for example, readings in the historians, with Professor Little; or in the theologians, in connection with Islamics 702 below, or the legists, in connection with Islamics 706. As the content may vary, this course may be repeated for credit.

397-631D. INTRODUCTORY TURKISH.

397-632D. LOWER INTERMEDIATE TURKISH.

397-633D. HIGHER INTERMEDIATE TURKISH.

397-634D. ADVANCED TURKISH. (This course will normally be related to Islamics 722 below; *Prerequisite:* Islamics 397-622D or 397-641D.)

397-641D. INTRODUCTORY PERSIAN.

397-642D. LOWER INTERMEDIATE PERSIAN.

397-643D. HIGHER INTERMEDIATE PERSIAN.

397-644D. ADVANCED PERSIAN. (*Prerequisite*: Islamics 622.)

397-651D. INTRODUCTORY URDU.

397-652D. LOWER INTERMEDIATE URDU.

397-653D. HIGHER INTERMEDIATE URDU.

397-654D. ADVANCED URDU. *(Prerequisite:* Islamics 622 or 641.)

397-670D. ISLAMIC ART AND ARCHITECTURE. Study of the development of Islamic art and architecture as related to the principles of Islam as a religion and regional traditions.

397-700D. Ph.D. PRELIMINARY EXAMINATION IN ISLAMICS. RESEARCH SEMINAR. For all students writing theses and of all others engaged in research. (Seminar 2 hours.) PROFESSOR ADAMS AND STAFF

Several of the following seminars will be given each year.

397-702D. ISLAMIC THEOLOGY: SEMINAR ON SPECIAL QUESTION. (2 hours.) The problem considered will vary from year to year. The course may, therefore, be repeated for credit. PROFESSOR IZUTSU

397-703D. READINGS IN CLASSICAL ARABIC PHILOSOPHERS. (Seminar 2 hours.) Consideration of the development of philosophic thought among the Muslims, and its relation to the late Greek background; with special reference to Ibn Sina (Avicenna). Some of his writings, especially the *Kitab al-Najat,* or al-Ghazzali's *Tahafut,* will be read in Arabic. The prose of *falsafah* in classical Islamic culture and thought. PROFESSOR IZUTSU

*397-704D. ISLAMIC THEOLOGY. (Seminar, 2 hours.) A study of significant aspects of the Muslims' attempt to give intellectual expression to their faith in different periods in the past. PROFESSOR IZUTSU

397-705D. THE SOCIAL INSTITUTIONS OF ISLAM. I. Government and State. (Seminar 2 hours.) A survey of the evolution of the various patterns and concrete manifestations of Muslim political theory and practice through the classical and mediaeval periods of Islamic history. The rise of modern states and political problems in various Muslim countries. PROFESSOR BERKES

*397-706D. THE SOCIAL INSTITUTIONS OF ISLAM. II. Law. (Seminar 2 hours.) The role of law in Islamic thought and society, considered historically in terms of its theological, political, and sociological aspects. The impact of modern legal systems and ideas, contemporary movements of codification, and the problems of legislation. PROFESSOR BERKES

*397-707D. SEMANTICS OF THE QUR'AN. (Seminar 2 hours; Half course.) An analytical study of Qur'an vocabulary. By applying the methods of analysis that are being developed in structural and field semantics to the verses of the Qur'an, the aim is to isolate the general conceptual scheme that underlies the Weltanschauung of the sacred book of Islam.
PROFESSOR IZUTSU

*397-710D. SHI'AH THOUGHT. (Seminar 2 hours.) A history of thought among the Shi'ah with consideration of important thinkers, movements and books.

397-721D. ISLAMIC DEVELOPMENTS IN THE MODERN ARAB WORLD. (Seminar 2 hours.) Internal reform movements and responses to external pressure, 1800 to the present.
PROFESSOR VERDERY

*397-722D. THE DEVELOPMENT OF SECULARISM IN MODERN TURKEY. (Seminar 2 hours.) An analysis of the transition from Ottoman institutions and ideas to those of contemporary Turkey. After considering the 18th century attempts at reform, attention is given to the changes during the *Tanzimat*, "Young Turk", and Republican periods, as a preparation for an understanding of contemporary problems raised by secularization. PROFESSOR BERKES

*397-723D. ISLAMIC DEVELOPMENTS IN MODERN INDIA AND PAKISTAN. (Seminar 2 hours.) Significant movements in Islamic thought and political action, since the Mughul downfall. The influence of Sirhindi; Waliyullah and his school; the Mujahidin; 1857. De'oband; Aligarh; Azad and Muslim participation in Indian nationalism; Iqbal; Pakistan. The Munir Report; Pakistan constitutional and ideological issues; Muslims in India since partition. PROFESSOR ADAMS

*397-724D. DEVELOPMENT OF THE ISLAMIC TRADITION IN INDONESIA. (2 hours.) Pre-Islamic background. The arrival of the Islamic tradition; Javanese elements in its development, and Hukum Adat. Muslim states versus the Dutch company; the Padri war. Islamic policy of the Dutch. Recent Islamic movements and political parties (Sarekat Islam, Muhammadijah, Masjumi, Nahdatul Ulama, Persatuan Islam, M.I.A.I., etc.). Nationalism.

*397-725D. THE ISLAMIC HISTORY OF WEST AFRICA. (2 hours.) A study of an Islamic role in the development of institutions and ideas in the western and central Sudan, from the 11th century to the present day. With special reference to (i) relations with the wider Muslim World, (ii) sources, literary and archaeological, for a study of this area.

*397-726D. ISLAMIC DEVELOPMENTS IN MODERN IRAN. (2 hours.)

397-727D. MODERN HISTORY OF THE ARABIAN GULF STATES. The history of the Arabian Peninsula in modern times with special emphasis on the Gulf States. Concentration will be on Saudi Arabia, Kuwait, Bahrain, Qatar, the Union of the Arab Amirates, and 'Uman from the 18th century to the present. PROFESSOR A. ABU-HAKIMAH

397-728D. ISLAMIC DEVELOPMENTS IN MODERN NORTH AFRICA. The relationship of the Maghrib to the Muslim East and Europe in mediaeval and modern times. Religious developments in North Africa before and after European conquest. The growth of nationalism in Libya, Tunisia, Algeria and Morocco. The interaction of Arab and French culture and its effect on Islam.

397-731D. ISLAM IN THE MODERN WORLD. (Seminar 2 hours.) A conspectus of the Islamic world's response to the internal decline in the eighteenth century and external encroachment in the nineteenth. A comparative study of constitutional developments, religious reform movements, nationalism, etc. PROFESSOR BERKES

397-740D. THE MYSTICAL TRADITION OF ISLAM (SUFISM). (Seminar 2 hours.) An historical and analytical study of great Sufis, their writings and their central problems. Emphasis will be laid upon reading Sufi texts in Arabic and Persian. As the content of the course will vary, this course may be repeated for credit. PROFESSOR LANDOLT

*397-750D. SOCIAL AND ECONOMIC DEVELOPMENT IN MUSLIM COUNTRIES. (Seminar 2 hours.) A study of development problems in the light of an historical survey of various reform policies in different countries; contemporary ideas of, and policy towards, development as shown in economic, technical, political and educational measures; with emphasis on the relevance of Islamic values to development problems. PROFESSOR BERKES

397-760D. MUSLIM HISTORIOGRAPHY. (Seminar 2 hours.) Readings in historical writings and consideration of the critical problems arising from the use of such materials.
PROFESSOR LITTLE

*397-761D. IRAN FROM THE MONGOLS TO THE SAFAVIDS. (Seminar 2 hours.) Historical developments in Iran, Iraq and Anatolia after 1258. The Ilkhanids and post-Mongol successor "states". The Turkman dynasties: Qara-Goyunlu. Shi'ism, Sufism, and the rise of the Safavids in 1500.

C7 DEPARTMENT OF ITALIAN LANGUAGE AND LITERATURE

C7.1 STAFF

Professor — A. D'ANDREA *(Chairman)*
Visiting Professor — F. FIDO
Associate Professor — PAMELA D. STEWART
Assistant Professor — M. PICONE

C7.2 REQUIREMENTS*

The B.A. degree with Honours or Joint Honours in Italian as granted by McGill University or its equivalent constitutes the minimum requirement. Applicants who do not have this prerequisite may be accepted for a Qualifying Year.

C7.2.1 REQUIREMENTS FOR THE M.A. DEGREE

The general Faculty regulations concerning the M.A. degree, as stated in sections 4 and 6 of the Calendar, apply.

One year of course work and a thesis are required. As a rule, students must take three full approved courses, of which one will be Italian 132-680D (Seminar on Literary Problems). After they have completed their course work, students are required to pass a comprehensive examination.

Course work, the comprehensive examination and the thesis must show that students have an unquestionably sound knowledge of the language, that they are familiar with all periods of the literature and have a first-hand knowledge of the major literary works, and that they have developed the skills necessary to carry out scholarly research.

C7.3 COURSES FOR THE M.A. DEGREE*

132-360D. SEMINAR ON ITALIAN STYLISTICS AND COMPOSITION.

132-461A. DANTE: *The Divine Comedy.*

132-462B. PETRARCH AND PETRARCHISM.

132-605D. HISTORY OF THE ITALIAN LANGUAGE. Origins and development of the Italian language with a discussion of relevant texts.

132-610B. BIBLIOGRAPHY OF ITALIAN LITERATURE. An introduction to the methods of research in the study of Italian Literature with a survey of the basic bibliographic apparatus. A half courses, generally required of all students.

132-620D. HISTORY OF LITERARY CRITICISM. Major trends in Italian literary criticism with a discussion of outstanding works of criticism.

132-630B. PROBLEMS IN TEXTUAL CRITICISM. An introduction to the methods of establishing a critical text with examples taken from Italian literature.

132-640D. ITALIAN LITERATURE AND THE WESTERN CULTURAL TRADITION. A study of certain aspects of Italian literature in relation to the literatures of other Western countries.

132-680D. SEMINAR ON LITERARY PROBLEMS. Staff-Student discussions of particularly important and difficult texts. A full course, compulsory for all students.

*Qualified students wishing to pursue their studies towards a Ph.D. in Italian should consult the chairman of the Department.

C 8 DEPARTMENT OF LINGUISTICS

C8.1 STAFF

Professors — C. D. ELLIS *(Chairman)*; A. A. RIGAULT
Associate Professors — ROSE-MARIE WEBER; MYRNA GOPNIK
Assistant Professor — D. LIGHTFOOT
Sessional Lecturer — G. R. TUCKER *(Assistant Professor, Department of Psychology)*

C8.2 REQUIREMENTS

C8.2.1 ADMISSION

Candidates must hold a B.A. degree with Honours or Joint Honours in Linguistics as granted by McGill University, or its equivalent. Applicants may be required to submit to an examination in order to determine their competence. If in the judgment of the department the student has not reached the expected level of competence, he may be required to take a Qualifying Year and/or attend a summer institute of linguistics.

C8.2.2 REQUIREMENTS FOR THE M.A. AND Ph.D. DEGREES

1. **Degree of Master of Arts.** The M.A. degree requires one year of course work of not less than three approved full courses, a comprehensive evaluation covering two areas of the field not covered in course work (see below 104-601D) and a thesis. Minimum admission requirement is normally a first degree equivalent to a McGill B.A. degree with Honours in Linguistics. Promising candidates with gaps in their preparation may be admitted to a *Qualifying Year* and/or required to attend a summer institute of linguistics.

2. **Degree of Doctor of Philosophy:** a) Candidates holding a B.A. degree with Honours in Linguistics will, upon admission, follow a program of at least three years. This will include three courses and Comprehensive Evaluation I (see below 104-601D) in the first year, two further courses and Comprehensive Evaluation II (see below 104-701D) in the second year and a doctoral thesis, research for which will normally occupy the third year.

b) Candidates holding a McGill M.A. in Linguistics and who, in the judgment of the Department, possess the qualifications of Ph.D. candidates will follow a further two-year program approved on an individual basis by the Department. This will include not less than two approved, full courses, a second comprehensive evaluation (see below 104-701D) to be successfully completed before beginning work on the thesis, and a doctoral thesis, research for which will normally occupy the second year of the Ph.D. program.

c) Candidates holding an M.A. in Linguistics from a recognized university upon admission to McGill must follow a program of at least two years, including not less than three approved full courses, Comprehensive Evaluations I and II (see below 104-601D and 104-701D) and a doctoral thesis, research for which will normally occupy the second year of the Ph.D. program.

C8.3 COURSES FOR HIGHER DEGREES

C8.3.1 GRADUATE COURSES

104-601D. M.A. COMPREHENSIVE EVALUATION. (Two presentations.)

104-610D. EXPERIMENTAL PHONETICS. Speech as a motor behaviour and as an acoustical phenomenon. Speech perception. Experimentation in the Phonetics Research Laboratory.
PROFESSOR RIGAULT

104-620D. CURRENT ISSUES IN SOCIOLINGUISTICS. An examination of the methodological and theoretical issues raised in the study of linguistic variation, including field methods, quantitative analysis, refinements in linguistic theory, and implications for language change. PROFESSOR WEBER

*104-630D. MODERN ENGLISH STRUCTURE. Examination of topics in English phonology and grammar from various theoretical positions, especially the European scholarly tradition, structuralism, and current generative grammar. PROFESSOR WEBER

104-640D. PROBLEMS IN HISTORICAL LINGUISTICS. Investigation of advanced problems in the history (attested) or prehistory (reconstructed) of various languages, illustrating linguistic change as change and/or reformulation of any part of a generative grammar, rather than as an interplay of mechanically regular "sound change" and sporadic "analogy". PROFESSOR LIGHTFOOT

*104-660D. PROBLEMS IN THE THEORY OF SEMANTICS. An investigation of various theories of semantics (e.g., those of Frege, Tarski, Wittgenstein, Austin, Chomsky, Katz, Lakoff) with particular attention to the assumptions each theory makes about what it must explain and the kinds of evidence which it accepts. PROFESSOR GOPNIK

*104-670D. RESEARCH METHODS IN PSYCHOLINGUISTICS. (Also listed as Psychology 455.) Various research approaches which have been used by psychologists and linguists will be critically evaluated. Later each student will select and conduct a major research project which he will discuss with other seminar members during the course of the year. The use of basic, relevant methodological tools will be reviewed and the effects of experimenter expectancy will be discussed. Seminar, no lectures. PROFESSOR TUCKER

104-701D. Ph.D. COMPREHENSIVE EVALUATION.

*104-730D. COMPARATIVE ALGONKIAN. A study of the structural relations between present-day Algonkian languages, leading to reconstruction of proto-forms; consideration of evidence for possible, wider (genetic) links with other indigenous language families. PROFESSOR ELLIS

*104-750D. LINGUISTIC THEORY. A study of various theories of Linguistics (e.g., those of de Saussure, Sapir, Bloomfield, Harris, Chomsky) with particular attention to the assumptions and rules of procedure of each theory and the change in these assumptions and rules from one theory to another. PROFESSOR GOPNIK

104-760D. SEMANTICS IN A GENERATIVE GRAMMAR. Examination of the status of semantics in a generative grammar. Discussion of generative and interpretive hypotheses. Comparison with traditional semantic systems posited by logicians. Implications for syntactic descriptions; formal constraints on grammatical transformations. PROFESSOR LIGHTFOOT

*104-770D. PROBLEMS OF LANGUAGE CONTACT. The influence of one language on another in the performance of individuals and in the history of speech communities. The sociocultural setting for bilingualism, the measurement of bilingual behaviour, and national language planning. PROFESSOR WEBER

104-780D. SELECTED TOPICS I.

104-782D. SELECTED TOPICS II.

104-784D. SELECTED TOPICS III.

104-790D. Ph.D. LANGUAGE EXAMINATION.

C8.3.2 ADVANCED UNDERGRADUATE COURSES

Students deficient in certain areas may be required to take some of the following *undergraduate courses* in addition to full graduate courses.

104-350A. INTRODUCTION TO GENERAL PHONETICS.

104-351B. PHONOLOGY.

104-360A. THEORY OF MORPHOLOGY AND SYNTAX.

104-361B. SEMINAR IN MORPHOLOGY AND SYNTAX.

104-400A. THEORY AND METHODS OF HISTORICAL LINGUISTICS.

104-401B. SEMINAR IN HISTORICAL LINGUISTICS.

104-461B. ADVANCED SYNTAX.

104-480A. SEMINAR IN LINGUISTIC THEORY.

104-481B. FIELD METHODS OF LINGUISTICS.

104-482D. FIELD OR RESEARCH PROJECT.

C 9 MUSIC

C9.1 STAFF

Professor — M. DUCHOW
Honorary Visiting Professor — H. LeCAINE
Visiting Professors — I. ANHALT; C. MORIN
Associate Professors — B. HAMBRAEUS; K. JONES; A. LANZA; B. MATHER; P. PEDERSEN *(on leave 1973-74)*
Assistant Professors — B. CHERNEY; P. HELMER; P. MARKS; B. MINORGAN

C9.2 PROGRAMS

Graduate study in the Faculty of Music is available in three areas: (a) Composition, (b) Musicology, and (c) Theory. The Master of Musical Arts Degree is offered in all three areas. Interdisciplinary studies involving Musicology or Theory are encouraged.

A limited number of teaching assistantships are available. Inquiries should be sent to the Chairman, Department of Theory, Faculty of Music.

C9.3 ADMISSION

Candidates must hold a B.Mus. in the area of specialization or a B.A. degree with major or honours in music including considerable work done in the area of specialization. Applicants are requested to submit samples of work done in their special area. Candidates may also be required to take placement tests in Analysis, History, and Theory. Candidates found to be deficient in any area may be required to take certain undergraduate courses. A reading knowledge of German is strongly recommended as a prerequisite for graduate work in Musicology.

C9.4 REQUIREMENTS FOR THE M.M.A. DEGREE

In all programs a minimum number of formal courses are prescribed. The student's major work is expected to be thesis research or composition which will be done under the supervision of an advisor. This work, as well as any additional courses and/or individual study which the department considers necessary, constitutes the central part of this program.

The M.M.A. Degree normally requires one year for applicants who have the equivalent of this University's B.Mus. with Honours in the area of specialization.

C9.4.1 **COMPOSITION**

(a) 219-630D. Seminar in Twentieth Century Music.
(b) One approved full course elective.
(c) Language reading examination in one of: French, German, or Italian.
(d) Thesis Composition. The Candidate will be required to attend regular composition tutorials.

C9.4.2 **MUSICOLOGY**

(a) Seminar in Musicology. (One full course or two half courses)

(b) Language reading examinations in German and one additional language related to the candidate's field of research.

(c) The candidate will be required to attend regular tutorials.

(d) Thesis. The candidate will undertake supervised research leading to a thesis which will be an investigation in depth in some specialized field of musicology.

C9.4.3 **THEORY**

(a) 219-650D. Seminar in Music Theory.

(b) Language reading examination in one of: French, German, or Italian.

(c) The candidate will be required to attend regular tutorials.

(d) Thesis. The candidate will undertake supervised research leading to a thesis which will be an investigation in depth in some specialized field of music theory.

C9.5 COURSES FOR HIGHER DEGREES

C9.5.1 **GRADUATE COURSES**

219-623A. ELECTRONIC MUSIC SEMINAR I. (3 hours seminar, 4 hours studio work; First term.) PROFESSOR HAMBRAEUS

219-624B. ELECTRONIC MUSIC SEMINAR II. (3 hours seminar, 4 hours studio work; Second term.) PROFESSOR LANZA

219-630D. SEMINAR IN TWENTIETH CENTURY MUSIC. (3 hours.) PROFESSOR MATHER

219-641A. ADVANCED COUNTERPOINT I. (2 hours.) PROFESSOR JONES

219-642B. ADVANCED COUNTERPOINT II. (2 hours.) PROFESSOR JONES

219-650D. SEMINAR IN MUSIC THEORY. (3 hours.) PROFESSOR HAMBRAEUS

219-652D. COMPUTER APPLICATIONS IN MUSIC. (3 hours; Not given in 1973-74.) PROFESSOR PEDERSEN

219-653B. MUSIC AESTHETICS AND CRITICISM. Topic for 1973-74: The Aesthetics of Music in the Philosophy of the Weimar Romantics: 1750-1850. PROFESSOR MARKS

219-680A. SEMINAR IN MUSICOLOGY. (3 hours; First term.) Topic for 1973-74: Music in Germany during the 1920's. PROFESSOR CHERNEY

219-681B. SEMINAR IN MUSICOLOGY. (3 hours; Second term.)

219-690D. SEMINAR IN PERFORMANCE PRACTICE (3 hours.) PROFESSOR HELMER

COMPOSITION TUTORIALS: PROFESSORS HAMBRAEUS, LANZA AND MATHER

MUSICOLOGY AND THEORY TUTORIALS: PROFESSORS CHERNEY, DUCHOW, HAMBRAEUS, HELMER, JONES, MARKS, MINORGAN AND PEDERSEN

C9.5.2 **ADVANCED UNDERGRADUATE COURSES**

Students deficient in certain areas may be required to take some of the following undergraduate courses in addition to their required graduate courses.

211-322D. TONAL COUNTERPOINT.
211-323D. MODAL COUNTERPOINT.
211-327D. ANALYSIS (19TH CENTURY).
214-380A. MEDIAEVAL MUSIC.
214-381A. RENAISSANCE MUSIC.
214-382B. BAROQUE MUSIC.
214-383A. CLASSICAL MUSIC.
214-384B. ROMANTIC MUSIC.
214-385B. TWENTIETH CENTURY MUSIC.
211-422D. FUGUE.
211-423D. ADVANCED HARMONY.
211-427D. ANALYSIS (20TH CENTURY).
214-489B. HISTORY OF MUSIC THEORY.
214-499D. PROSEMINAR IN MUSICOLOGY.

C10 DEPARTMENT OF PHILOSOPHY

C10.1 STAFF

Professors — H. M. BRACKEN; M. BUNGE; R. KLIBANSKY; A. J. McKINNON; R. H. POPKIN *(Part-time)*; C. TAYLOR; J. A. TRENTMAN

Associate Professors — D. F. NORTON; J. ROBINSON *(Chairman)*; J. D. B. WALKER

Assistant Professors — H. A. BEATTY; G. DI GIOVANNI; WARREN HARVEY; M. SCHLEIFER *(on leave)*

C10.2 REQUIREMENTS

C10.2.1 ADMISSION

Before entering upon a course of graduate studies, a student will normally have completed an Honours B.A. in Philosophy, or its equivalent, that is, a degree for which he or she has devoted one third to one half of his curriculum to philosophy. The applicant's competence in the subject should include the following:

(1) A general knowledge of the history of Western philosophy, Greek, Mediaeval, Modern.

(2) A systematic knowledge of the main philosophical disciplines, in their contemporary as well as historical contexts: logic, ethics, epistemology, and metaphysics.

(3) An ability to present, in written form, clear and substantial reconstruction and analysis of the materials normally studied in the areas mentioned in (1) and (2).

To demonstrate their competence in these areas applicants must submit transcripts of academic work, two letters of recommendation from persons with whom they have studied, and at least one substantial example (approximately 15-20 typewritten pages) of their written philosophical work. In addition, applicants are urged to submit scores (Aptitude Test only) of the Graduate Record Examination. Applications and supporting documents should be submitted by March 15.

C10.2.2 REQUIREMENTS FOR THE M.A. DEGREE

A program consistent with the requirements specified in the Faculty Regulation will be arranged for each student. This will include at least three full courses, or the equivalent, during the first year.

C10.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

Students entering the Ph.D. program will follow a course of studies decided upon in consultation with their Advisory Committees. Each Ph.D. student will complete courses on diverse aspects of philosophy, and prepare for oral Comprehensive Examinations in 1) Epistemology and Metaphysics; 2) Ethics; and 3) History of Philosophy. Competence in Logic must also be demonstrated, either by written examination or by completion, with a grade of 'B' or higher, of a course approved by the Department. These examinations are to be taken at the beginning of the students' third year in the program.

The special interests of each student will be taken into account when his or her course of studies is decided, and examination papers are decided upon. In addition, all candidates must pass reading examinations in two (approved) languages other than their mother tongue. As soon as the Comprehensive Examinations are passed, the student will begin work on a dissertation. Dissertation topics must be selected within the research areas in which the Department can provide proper supervision, and within the linguistic competence of the student.

Students who enter the program without an M.A. degree or previous graduate work may be expected to complete such a degree before being advanced to the Ph.D. program.

C10.3 COURSES FOR HIGHER DEGREES

107-210A. INTRODUCTION TO DEDUCTIVE LOGIC. (3 hours.) Including Sentential and Quantificational Logic. PROFESSOR BEATTY

107-211B. INTRODUCTION TO DEDUCTIVE LOGIC. A continuation of 210A. (3 hours.) PROFESSOR BEATTY

107-401D. SEMINAR IN THE HISTORY OF ETHICS. *Prerequisite:* Consent of the lecturer. *Topic:* The development of natural law theories. PROFESSORS TRENTMAN AND ROBINSON

107-404D. MORAL PHILOSOPHY. *Prerequisite:* One full course in Philosophy or consent of the lecturer. *Topic:* Human beings and human relationships. PROFESSOR WALKER

*107-406A. PHILOSOPHY AND LITERATURE.

*107-407B. PHILOSOPHY AND LITERATURE.

107-410D. INTERMEDIATE LOGIC. *Prerequisite:* Philosophy 107-211B or equivalent. Axiomatic treatment of propositional and predicate calculus. Introduction to philosophy of mathematics. Computability and decidability. PROFESSOR BEATTY

107-411D. MEDIAEVAL LOGIC AND GRAMMAR. *Prerequisite:* Consent of the lecturer. Topics will be selected according to the interests of the class. PROFESSOR TRENTMAN

*107-413A. RECENT AND CONTEMPORARY BRITISH PHILOSOPHY.

*107-414B. RECENT AND CONTEMPORARY BRITISH PHILOSOPHY.

*107-417D. PROBLEMS IN SEMANTICS.

107-420D. METHODOLOGY AND PHILOSOPHY OF SCIENCE. *Prerequisite:* Consent of the lecturer. *Topic:* Philosophy of Scientific Research. PROFESSOR BUNGE

*107-423A. FORMAL METHODS IN PHILOSOPHY AND THE SOCIAL SCIENCES.

*107-424B. FORMAL METHODS IN PHILOSOPHY AND THE SOCIAL SCIENCES.

*107-427A. PHILOSOPHY OF PHYSICS.

*107-428B. PHILOSOPHY OF PHYSICS.

*107-431A. SEMINAR IN PHILOSOPHY OF RELIGION.

*107-432B. SEMINAR IN PHILOSOPHY OF RELIGION.

*107-441A. SEMINAR IN ANCIENT PHILOSOPHY.

*107-442B. SEMINAR IN ANCIENT PHILOSOPHY.

107-444D. SEMINAR IN THE HISTORY OF PHILOSOPHY. *Prerequisite:* Consent of the lecturer. *Topic:* Hume's Epistemology.

107-448A. LEGAL AND MORAL PHILOSOPHY OF THE JEWISH TRADITION. *Topic:* Hasdai Crescas' critique of Maimonides. Readings in Hebrew. PROFESSOR HARVEY

107-449B. LEGAL AND MORAL PHILOSOPHY OF THE JEWISH TRADITION. *Topic:* Hasdai Crescas' theory of love. Readings in Hebrew. PROFESSOR HARVEY

197-472D. PHILOSOPHY OF POLITICS. *Prerequisite:* Consent of the lecturer. *Topic:* Reading *Capital*. PROFESSOR WALKER

107-481D. METAPHYSICS' DIALECTICS, LOGIC and EPISTEMOLOGY. *Topic:* Modern Phenomenology and existentialism. PROFESSOR DI GIOVANNI

107-483A. SEMINAR IN SYSTEMATIC PHILOSOPHY. *Prerequisite:* Consent of the lecturer. *Topic:* An examination of several problems in the philosophy of language, e.g. translation, meaning, truth and reference. PROFESSOR McGILVRAY

107-484B. SEMINAR IN SYSTEMATIC PHILOSOPHY. *Prerequisite:* Philosophy 107-483A. *Topic:* Further issues in the Theory of language. An analysis of two or three issues selected from among these: presuppositions, tenses, referential semantics, the performance/competence distinction. PROFESSOR McGILVRAY

107-485A. METAPHYSICS. *Prerequisite:* Consent of the lecturer. *Topic:* Metaphysics and science. PROFESSOR BUNGE

107-486B. METAPHYSICS. *Prerequisite:* Philosophy 107-485A. *Topic:* Metaphysics and science. PROFESSOR BUNGE

107-487A. SEMINAR IN PROBLEMS OF PHILOSOPHY. *Prerequisite:* Consent of the lecturer. *Topic:* Philosophy of the later Plato. PROFESSOR KLIBANSKY

*107-488B. SEMINAR IN PHILOSOPHY.

*107-494B. SEMINAR IN PHILOSOPHY.

107-705D. GUIDED RESEARCH IN ETHICS.

107-710D. GUIDED RESEARCH IN LOGIC.

107-720D. GUIDED RESEARCH IN PHILOSOPHY OF SCIENCE.
107-730D. GUIDED RESEARCH IN PHILOSOPHY OF RELIGION.
107-740D. GUIDED RESEARCH IN ANCIENT PHILOSOPHY.
107-750D. GUIDED RESEARCH IN MEDIAEVAL PHILOSOPHY.
107-760D. GUIDED RESEARCH IN HISTORY OF PHILOSOPHY.
107-770D. GUIDED RESEARCH IN PHILOSOPHY OF POLITICS.
107-780D. GUIDED RESEARCH IN EPISTEMOLOGY AND METAPHYSICS.

Several courses primarily philosophical in content are available in other departments. Note in particular the offerings in Classics, Jewish Studies, and Islamic Institute.

C11 RELIGIOUS STUDIES

C11.1 STAFF

Professors — G. JOHNSTON *(Dean)*; C. J. ADAMS; S. B. FROST; E. G. JAY; J. C. McLELLAND
Associate Professors — J. A. BOORMAN; R. C. CULLEY; J. C. KIRBY; D. N. MacMILLAN; H. K. MARKELL; M. PEASTON
Assistant Professors — D. R. RUNNALLS; R. W. STEVENSON

C11.2 REQUIREMENTS

Requirements for admission to the courses leading to the degrees of M.A., S.T.M. and Ph.D. are stated in Sections 6, 17 and 18 of Faculty Regulations. Further information is given in the *Announcement of the Faculty of Religious Studies*.

C11.3 COURSES FOR HIGHER DEGREES

The staff offers each session a selection from the following list of courses, and is prepared to guide students in thesis research on approved topics, within any of the following fields: Old Testament language and literature; New Testament language and literature; Church History; Historical Theology, including Theological Ethics; Philosophy and Psychology of Religion. To each approved student appropriate courses will be assigned, on occasion including courses offered by other Departments such as Education (Catholic Theology), Art History, Philosophy, History, Classics, Jewish Studies, or Islamic Studies. Graduate students in these Departments may be permitted or required to take courses currently offered in Religious Studies.

Adequate library facilities are available in the William and Henry Birks Building and elsewhere in the University for the courses listed, and for research.

All are half-courses unless otherwise noted.

A course may not be offered if fewer than six students enrol.

C11.3.1 **AREA A (BIBLICAL)**

*260-601A.	FORESHADOWINGS OF THE EUCHARIST IN THE OLD TESTAMENT.	W. LAWLOR
*260-602A.	THE ISAIANIC ANTHOLOGY.	S. B. FROST
*260-603B.	THE DANIEL APOCALYPSE.	S. B. FROST
260-605B.	INTERPRETERS OF THE RELIGION AND FAITH OF ANCIENT ISRAEL.	R. C. CULLEY
*260-607A.	STUDIES IN THE BIBLICAL NARRATIVE TRADITIONS.	R. C. CULLEY
260-690B.	HEBREW TEXTS.	R. C. CULLEY

*260-610A. RECENT INTERPRETATIONS OF MARK. J. C. KIRBY
*260-612B. THE PASSION NARRATIVE IN THE FOUR GOSPELS. J. C. KIRBY
*260-613A. NEW TESTAMENT ETHICS. G. JOHNSTON
260-614B. THE GOSPEL OF JOHN. G. JOHNSTON
*260-615B. THE HOLY SPIRIT IN THE NEW TESTAMENT. G. JOHNSTON
*260-616A. LES PARABOLES DE JESUS. J. C. KIRBY
260-617C. EPHESIANS. J. C. KIRBY
*260-618B. THE CHURCH IN THE NEW TESTAMENT. G. JOHNSTON

C11.3.2 AREA B (HISTORICAL)

*260-620B. WORSHIP IN THE NEW TESTAMENT. J. C. KIRBY
*260-621A. ROMAN CATHOLICISM FROM 1870 TO THE PRESENT. H. K. MARKELL
*260-622B. THE MODERN LITURGICAL MOVEMENT. J. C. KIRBY
*260-623A. THE ECUMENICAL MOVEMENT. H. K. MARKELL
260-624B. THE CHURCH AND THE CITY IN THE ANGLO-AMERICAN WORLD: 1800-1914. H. K. MARKELL
*260-625B. CANADIAN CHURCH HISTORY. H. K. MARKELL
*260-631A. THE SIGNIFICANCE OF ORIGEN OF ALEXANDRIA. E. G. JAY
*260-632B. THE EMERGENCE OF DOCTRINE IN THE APOSTOLIC FATHERS. E. G. JAY
*260-633A. THE SCHISMS OF THE EARLY CHURCH. E. G. JAY
*260-634A. THE THEOLOGY OF AUGUSTINE OF HIPPO — CHURCH, MINISTRY AND SACRAMENTS. E. G. JAY
260-634B. THE THEOLOGY OF AUGUSTINE OF HIPPO — GOD AND MAN. E. G. JAY
*260-635B. THE NATURE AND FUNCTION OF THE CHURCH. E. G. JAY
*260-636B. THE THEOLOGY OF KARL BARTH. J. C. McLELLAND
260-637B. THE THEOLOGY OF D. M. BAILLIE. D. N. MacMILLAN
260-682A, 682B, 692D. RESEARCH IN THE HISTORY OF CHRISTIANITY. H. K. MARKELL

C11.3.3 AREA C (PHILOSOPHY)

*260-641A. THEOLOGY AND THE ARTS. J. C. McLELLAND
*260-642A. PHILOSOPHY AND THEOLOGY. J. C. McLELLAND
260-642B. PHILOSOPHY OF RELIGION IN THE 20TH CENTURY. J. C. McLELLAND
*260-643A. THE MEANING AND BASIS OF RELIGIOUS BELIEF. J. C. McLELLAND AND A. McKINNON
260-643B. KEY PROBLEMS IN PHILOSOPHY OF RELIGION: MODERN ATHEISM. J. C. McLELLAND
*260-645B. MEANING AND INTERPRETATION. R. C. CULLEY, J. C. KIRBY AND J. C. McLELLAND
*260-661A. HUMAN NATURE IN THEOLOGICAL AND PSYCHOLOGICAL PERSPECTIVE. M. PEASTON
260-662B. RELIGION AND PERSONALITY: THE FORMS OF LOVE. M. PEASTON
260-663A. THE SELF IN TRANSFORMATION: BEHAVIOUR CHANGES AND PERSONAL GROWTH. M. PEASTON
260-670D. CHRISTIAN SOCIAL ETHICS AND CONTEMPORARY THOUGHT. J. A. BOORMAN
*260-671D. CONTEMPORARY VALUE SYSTEMS AND CHRISTIAN ETHICS. J. A. BOORMAN
260-684A, 684B, 694D. RESEARCH IN PHILOSOPHY OF RELIGION. J. C. McLELLAND

C11.3.4 AREA D (COMPARATIVE STUDY)

*260-650D. RELIGIONSWISSENSCHAFT: THE HISTORY OF THE DISCIPLINE. C. J. ADAMS
260-656D. STUDIES IN THE BHAGAVADGITA. R. W. STEVENSON
397-604D. THE ISLAMIC TRADITION. C. J. ADAMS
*397-702D. ISLAMIC THEOLOGY. I. IZUTSU
260-687A, 687B, 697D. RESEARCH IN COMPARATIVE RELIGION. R. W. STEVENSON

C11.3.5 ELECTIVE COURSES IN OTHER DEPARTMENTS

With the consent of the Dean of Religious Studies and the instructor concerned graduate students may choose one or more of the following related courses, provided they are being offered.

123-612A or B. *Art History* — MEDIAEVAL ART AND ARCHAEOLOGY.
123-622A or B. THE ART OF BYZANTIUM.
114-653A or B and 114-751A or B. *Classics* — NON-LITERARY SUBJECTS.
120-610A. *English* — DEVOTIONAL LITERATURE.
101-607D. *History* — RELIGIOUS AND IDEOLOGICAL MOVEMENTS IN THE UNITED KINGDOM AND WESTERN EUROPE 1815-1914.
101-616D. PHILOSOPHY OF HISTORY.
101-617D. THE IMPACT OF CHURCH AND STATE RELATIONS ON FRENCH CANADIAN SOCIETY.
107-381D. PROBLEMS OF PHILOSOPHY.
107-401B. HISTORY OF ETHICS.
107-463D. KIERKEGAARD.

C12 DEPARTMENT OF RUSSIAN AND SLAVIC STUDIES

C12.1 STAFF

Professor — J. G. NICHOLSON *(Chairman)*
Visiting Professors — J. Y. LE GUILLOU; R. V. PLETNEV
Assistant Professors — P. M. AUSTIN; LUDMILA BAUER; A. V. FODOR; IRENE PAVILANIS

C12.2 REQUIREMENTS

Original research work and the scholarly qualities of the thesis are the principal criteria for conferring a graduate degree in Russian. Two distinct fields of graduate work are recognized — Russian language and Russian literature respectively. It is expected that most students will enter the literary field with a minority showing research interest in philology and linguistics. However, both groups are appropriately provided for.

The general rules of the Faculty apply and are outlined in the first part of this calendar in Section 3.2.2.3 — "The Degree of Master of Arts" — and in Section 3.2.3.3 — "Regulations for the Degree of Doctor of Philosophy (Ph.D.)." The minimum academic requirement is normally a high second class standing in Honours Russian. Further, the Department must be convinced that the candidate for admission has an aptitude for research work and will be able to make an original contribution to knowledge. The Department will usually require candidates to demonstrate a useful reading knowledge, for research purposes, of at least one other Slavic language. In addition a knowledge of French and, preferably, also German, is desirable. Any necessary preparation to fulfil these requirements will be offered within the Department or elsewhere at McGill. On an experimental and reciprocal basis certain graduate courses may be taken by arrangement at the Université de Montréal.

C12.2.1 REQUIREMENTS FOR THE M.A. AND Ph.D. DEGREES

Details of the requirements for the M.A. and Ph.D. degrees may be obtained by applying directly to the Chairman of the Department.

C12.3 COURSES FOR HIGHER DEGREES

141-601D.	M.A. COMPREHENSIVE EXAMINATION.	STAFF
141-610D.	CHURCH SLAVONIC	PROFESSOR J.-Y. LeGUILLOU
141-620D.	SECOND SLAVIC LANGUAGE AND CIVILIZATION.	PROFESSOR NICHOLSON AND STAFF
141-630D.	EARLY HISTORY OF THE SLAVIC LANGUAGES.	PROFESSOR NICHOLSON
141-640D.	THE BALTO-SLAVIC HYPOTHESIS.	PROFESSOR PAVILANIS
141-650D.	HISTORY OF THE RUSSIAN LANGUAGE.	PROFESSOR NICHOLSON
141-660D.	PRE-PETRINE RUSSIAN LITERATURE.	PROFESSOR LEGUILLOU
141-670D.	RUSSIAN LITERATURE OF THE 18TH CENTURY.	PROFESSOR PLETNEV
141-680D.	SEMINAR ON SPECIAL AUTHORS OF 19TH CENTURY.	PROFESSOR PLETNEV
141-681D.	SEMINAR ON RUSSIAN ROMANTICISM.	PROFESSOR AUSTIN
141-690D.	DEVELOPMENT OF RUSSIAN LITERARY CRITICISM.	PROFESSOR AUSTIN
141-700D.	Ph.D. PRELIMINARY EXAMINATION.	PROFESSOR NICHOLSON AND STAFF
141-701D.	Ph.D. COMPREHENSIVE EXAMINATION.	STAFF
141-710D.	SEMINAR ON THE Ph.D. COMPREHENSIVE EXAMINATION.	STAFF
141-720D.	FIRST SEMINAR ON SPECIAL TOPICS.	STAFF
141-721D.	SECOND SEMINAR ON SPECIAL TOPICS.	
141-722D.	THIRD SEMINAR ON SPECIAL TOPICS.	

C12.3.1 Ph.D. LANGUAGE TESTS

For Ph.D. candidates in other departments who require Russian for research and in satisfaction of the language requirement the following course is offered.

141-D. RUSSIAN READING COURSE. (3 hours, both terms.) This course enables the student to use written Russian as a useful research tool. STAFF

141-790D. RUSSIAN AS A LANGUAGE REQUIREMENT FOR THE Ph.D. See "Ph.D. Language Tests" and consult the Department.

C13 DEPARTMENT OF SPANISH LANGUAGE AND LITERATURE

C13.1 STAFF

Professor — S. LIPP *(Chairman)*

Associate Professors — M. HARVEY; A. MICHALSKI; J. SANCHEZ; V. UGALDE-CUESTA

Assistant Professors — M. AMASUNO; N. MARTINEZ; V. OUIMETTE

C13.2 REQUIREMENTS*

C13.2.1 REQUIREMENTS FOR THE M.A. DEGREE

In order to be admitted to graduate work in Spanish, the candidate must fulfil the following prerequisites:

a) Candidates must possess a B.A. degree with Honours or in certain cases Joint Honours in Spanish from McGill University, or an equivalent degree from another college or university of recognized standing.

b) Candidates who do not possess the above prerequisites may, with special permission, enter the Department as qualifying students for the purpose of completing these preliminary studies.

The Department, in addition, prefers that the candidate submit the results of the Graduate Record Examination.

Graduate students holding a Teaching Assistantship or who are otherwise employed will normally not be allowed to take more than two full courses a year. If a student's knowledge of English is deemed inadequate, he may be required to attend an approved course in that language.

Candidates must take the equivalent of four full courses, including the compulsory half course on Methods of Literary Analysis, which must be taken in the first year. The other courses may be spread over a period of not more than two years.

The performance of students will be continuously assessed and candidates will be required to pass a final comprehensive examination, and a thesis, normally of 80 pages to be presented after the fulfilment of course requirements.

C13.3 COURSES FOR THE M.A. DEGREE*

144-600D. M.A. COMPREHENSIVE EXAMINATION.
144-602A. METHODS OF LITERARY ANALYSIS. PROFESSOR MARTINEZ
144-622A. LYRIC POETRY FROM BERCEO TO GARCILASO. PROFESSOR MICHALSKI
144-623B. ORIGINS OF THE NOVEL. PROFESSOR MICHALSKI
144-635A. GRACIAN'S *EL CRITICON*. PROFESSOR UGALDE
144-681A. MARTI. A study of his prose and poetry. PROFESSOR SANCHEZ
144-682B. EL INDIO EN LA LITERATURA HISPANOAMERICANA. PROFESSOR SANCHEZ
144-691B. CONTEMPORARY SPANISH AMERICAN PROSE AND POETRY. PROFESSOR MARTINEZ
144-695A. ENSAYISTAS Y PENSADORES DE HISPANOAMERICA. PROFESSOR LIPP
144-699A, B. READING COURSE.
144-790D. Ph.D. LANGUAGE REQUIREMENT. (For students in other departments.)

*Qualified students wishing to pursue their studies towards a Ph.D. in Spanish should consult the chairman of the Department.

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "D" MEDICAL AND ALLIED SCIENCES

1973-74

NOTE: Courses, marked with an asterisk (*), are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Fall and Spring term course

The official McGill mailing address: is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada.

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GRADUATE STUDIES AND RESEARCH IN THE MEDICAL SCIENCES

1. Departments wholly located in the Faculty of Medicine may accept as candidates for research degrees those who have received the M.D. or equivalent degree. A candidate who does not have the M.D. or equivalent degree may be accepted if a suitable schedule of course work is included as part of his graduate education program. Departments located partly in the Medical and partly in the Arts and Sciences Faculties may accept as candidates for basic science research degrees students who have an Honours or major Bachelor's degree or its equivalent.

2. A candidate for a research degree in a clinical department will be required to give evidence of above-average ability.

3. A candidate for the M.Sc. research degree in a clinical department will be recommended to Graduate Faculty by the Medical Faculty Graduate Studies Committee. This same candidate must be registered for at least one academic session in the Graduate Faculty. He must fulfil his program of course work and present a thesis acceptable to the Graduate Faculty.

4. A candidate for the Ph.D. research degree in a clinical department will be recommended to the Graduate Faculty by the Medical Faculty Graduate Studies Committee. If, in addition to the M.D. degree, he possesses the M.Sc. degree of this University or its equivalent, he will be required to spend two years in the Graduate Faculty in academic residence; if he does not have the M.Sc. degree, he must spend three years in residence. He must fulfil his program of course work and present a thesis acceptable to the Graduate Faculty.

5. The Graduate Studies Medical Committee supplies the Dean of the Graduate Faculty in October of each year with a list of those members of the Medical Faculty who are authorized to be directors of the graduate students in the departments of the Medical Faculty.

Inquiries concerning research in the clinical aspects of medicine may be in the first instance directed to:

ASSOCIATE DEAN FOR GRADUATE STUDIES AND RESEARCH
THE FACULTY OF MEDICINE
McGILL UNIVERSITY
P.O. BOX 6070
MONTREAL 101, P.Q.

D1 73/74 DEPARTMENT OF ANATOMY

D1.1 STAFF

Professors — C. P. LEBLOND *(Chairman)*; Y. W. CLERMONT; R. S. HARRIS; D. G. OSMOND

Associate Professors — BEATRIX KOPRIWA; P. K. LALA; N. J. NADLER; H. WARSHAWSKY

Assistant Professors — G. C. BENNETT; S. C. HARVEY *(Museum Curator)*; ANNETTE HERSCOVICS; M. WEINSTOCK; W. E. WILSON

Lecturers — J. R. ADAMS; F. BRAHIM; HAZEL CHENG; E. DANIELS; M. F. LALLI; C. E. SMITH

D1.2 REQUIREMENTS

The department offers facilities for research work leading to the degrees of Master of Science and Doctor of Philosophy in Anatomy. The emphasis may be on Microscopic or Gross Anatomy or Embryology.

For registration as a graduate student, the candidate must hold a B.Sc. or M.D. degree or any equivalent degree, as judged by the Faculty, and must have displayed general proficiency in biological studies. Letters of recommendation are required for all applicants.

For the M.Sc. and Ph.D. degrees, the students must demonstrate ability to conduct original research and complete a series of courses with high standing. In addition to the preparation of a thesis based on original research, Ph.D. candidates will write a comprehensive examination after the end of the Second year.

Ph.D. candidates must pass reading examinations in *one*, or in *two* languages other than English, as prescribed by the Chairman on the registration forms.

When the emphasis is on Gross Anatomy or Embryology, the students will take 504-614D (Gross Anatomy), 504-622A (Neuro-Anatomy), 504-632D (Experimental Morphology) and 504-481A (Embryology). Ph.D. candidates will be required to take courses such as 504-723D (Advanced Neuro-Anatomy) and 504-663D (Histology) and to extend their knowledge of Anatomy at an advanced level, including the use of technical procedures.

When the emphasis is on Microscopic Anatomy, students will take 504-663D (Histology), 504-632D (Experimental Morphology) and 504-481A (Embryology). Candidates for the Ph.D. degree will be required to take courses such as 504-614D (Gross Anatomy), 504-622A (Neuro-Anatomy), and General Pathology.

D1.3 ADVANCED UNDERGRADUATE AND GRADUATE COURSES

504-311A. GENERAL MUSCULO-SKELETAL ANATOMY. Introduction to human anatomy devoted primarily to a description of the skeleton and muscular system.

504-312B. GENERAL VISCERAL ANATOMY. An introductory course in human anatomy devoted to the visceral systems, including the circulatory, respiratory, digestive and reproductive systems.

504-413A. GROSS ANATOMY. Limbs and Back.

504-481A. EMBRYOLOGY.

504-614D. GROSS ANATOMY. Dissection and lectures designed for medical students.

504-615D. APPLIED ANATOMY.

504-622A. NEURO-ANATOMY. This is part of a joint course including Neuro-physiology.

504-632D. EXPERIMENTAL MORPHOLOGY. A seminar and a practical course on the use of experimental techniques in morphological research.

504-663D. HISTOLOGY.

504-701D. Ph.D. COMPREHENSIVE EXAMINATION.

504-723D. ADVANCED NEURO-ANATOMY. Seminar course at the Montreal Neurological Institute.

D2 DEPARTMENT OF BIOCHEMISTRY

D2.1 STAFF

Professors — A. F. GRAHAM *(Chairman)*; D. RUBINSTEIN; S. SOLOMON; T. L. SOURKES; J. H. SPENCER; L. S. WOLFE

Associate Professors — P. E. BRAUN; D. T. DENHARDT; M. J. FRASER; E. A. HOSEIN; ROSE M. JOHNSTONE; A. R. WASSERMAN

Assistant Professors — ELEANOR M. HARPUR; R. E. MacKENZIE; E. A. MEIGHEN; L. S. MILLWARD; W. MUSHYNSKI

Lecturer — M. R. REESAL

Associate Members — M. K. BIRMINGHAM *(Psychiatry)*; R. BLOSTEIN *(Exp. Medicine)*; J. DUPRE *(Exp. Medicine)*; D. EDWARD *(Exp. Surgery)*; W. C. GALLEY *(Chemistry)*; L. GOODFRIEND *(Exp. Medicine)*; L. M. JERRY *(Exp. Medicine)*; H. PAPPIUS *(Exp. Neurochemistry)*; C. SCRIVER *(Paediatrics)*; J. SHUSTER *(Exp. Medicine)*

D2.2 REQUIREMENTS

Students must submit with their application for admission the results of the Graduate Record Examination (aptitude test, and achievement test in Biology or Chemistry) and two letters of recommendation.

Students who have satisfactorily completed an Honours course in Biochemistry and who have been accepted as research students by the Department and by a research director approved by the Department may register for the M.Sc. degree, which usually involves a two-year program. Following completion of one year of study in the Department, suitable candidates may be allowed to proceed directly to the Ph.D. degree, depending on the ability they display in research and course work.

Program of courses for each student is determined by the individual research director in consultation with the Chairman of the Department's Graduate Advisory Committee. Students who have not obtained a suitable Honours degree or its equivalent will be required to take a qualifying year or otherwise make up for deficiencies.

Candidates who have obtained the M.Sc. degree with satisfactory standing from this department, or have completed an acceptable program from another university, may be accepted for studies leading to the Ph.D. degree provided they are accepted by a research director.

Research work is carried on in the Department laboratories where projects deal with the biochemistry of erythrocytes, liver, brain, muscle, chloroplasts, endocrine organs, nucleic acids, peptides, lipids, and transport phenomena; or in the Biochemisctry Laboratories of the Allan Memorial Institute of Psychiatry, the Laboratory of Experimental Neurochemistry of the Montreal Neurological Institute, the University Clinics of the Montreal General and the Royal Victoria Hospitals or in certain other laboratories.

There is no second language requirement for Ph.D. students, except where individual research directors wish to make such a requirement for their own students. Students whose mother tongue is not English must be proficient in English and may be required to take a remedial English course if the research director deems this necessary.

D2.3 COURSES FOR HIGHER DEGREES

D2.3.1 GRADUATE LEVEL COURSES

*507-602A. TOPICS IN MOLECULAR BIOLOGY. (Admission by permission of instructor only.)
PROFESSORS DENHARDT AND MILLWARD

*507-603B. IMMUNOCHEMISTRY. (Admission by permission of instructor only.)
PROFESSORS SHUSTER AND JERRY
(University Clinic, Montreal General Hospital)

D2.3.2 ADVANCED UNDERGRADUATE COURSES

507-352D. METABOLISM AND REGULATION. (6 credits; *Prerequisite:* Biology 177-201D; *Corequisite:* Biology 177-301A, 302B.)
PROFESSOR JOHNSTONE AND STAFF

507-450A. PROTEIN STRUCTURE AND FUNCTION. (3 credits; *Prerequisites:* Biology 177-301A, 302B.)
PROFESSORS MACKENZIE AND MEIGHEN

507-451B. BIOPHYSICAL CHEMISTRY. (3 credits; *Prerequisites:* Chemistry 180-204A, 214B or 213A, 223B required; Chemistry 180-313A recommended. This course is also listed as Chemistry 180-404B.)
PROFESSORS MEIGHEN AND GALLEY (Chemistry)

507-454A. NUCLEIC ACIDS. (3 credits; *Prerequisites:* Biology 177-301A, 302B; Biochemistry 352D.)
PROFESSORS DENHARDT AND SPENCER

507-455B. NEUROCHEMISTRY. (3 credits; *Prerequisites:* Biochemistry 507-352D and Biology 177-301A, 302B.)
PROFESSORS SOURKES, WOLFE AND STAFF

D2.3.3 SEMINARS

There are three series of seminars: the junior seminar consists of a presentation by each student near the end of his M.Sc. program or the beginning of his Ph.D. II year, on the subject of his recent or on-going research. The senior seminar consists of a presentation by every third or later year Ph.D. candidate on the subject of his research. Departmental staff seminars consist of presentations by members of staff and visiting scientists outlining their work with their collaborators. Graduate students are required to attend all the above seminars and certain informal seminars, and are encouraged to attend relevant scientific meetings.

D3 BIOMEDICAL ENGINEERING UNIT

The academic program of the Unit is designed to enable qualified graduate students to pursue interdisciplinary studies in Engineering and Medicine. This program has been structured mainly for engineers, but applicants from the biological and medical sciences are welcome. The teaching and research program leads to the Master's and Doctoral degrees. At present students will be registered in the Faculty of Graduate Studies and Research through their respectively relevant departments. Limited financial assistance for students may be available through the Unit, as well as through the University. For further information, apply to the Director, BioMedical Engineering Unit, McIntyre Medical Sciences Building.

Course work will be prescribed on an individual basis. In general, however, a minimum of six courses will be required as well as a thesis for the Master's degree.

The research interests of the Unit can be classified into two main categories: (i) experimental and theoretical studies of basic scientific nature, and (ii) application and development of technology for health care delivery. Our basic research work encompasses: neuromuscular control system studies, in particular, locomotion and posture, vestibular and visual control; optimization studies of eye movements and of the cardiovascular system; sensory and neural communication theory; modelling of the auditory system; and amino acid transport across cell membrane. Apart from in the Unit, research may be done especially in the Otolaryngological Research Labs Department of Biophysics and Biomedical Engineering (Montreal Children's Hospital), or in any other labs primarily concerned with the particular projects.

In the area of research and development for health and medical services, our activities are: computer applications and instrumentation for audiology, cardiology, electronystagmography, visual testing and the processing of biological signals; analysis of the system aspects of hospitals, health care centres and their subunits; investigation and design of information systems for pathology, clinical laboratories and other hospital functions.

D3.1 STAFF

Assistant Professors — C. A. LASZLO *(Acting Director);* H. C. LEE; D. H. MOSCOVITCH; J. L. NEAL; J. S. OUTERBRIDGE

Research and Teaching Associates — D. R. FIRTH *(Physiology);*
C. GORESKY *(Experimental Medicine);* V. KLISSOURAS *(Physical Education);*
M. D. LEVINE *(Electrical Engineering);* P. MACKLEM *(Experimental Medicine);*
D. A. O. MAMER *(Experimental Medicine);* G. MANDL *(Aviation Medical Research Unit);* G. MELVILL JONES *(Aviation Medical Research Unit);*
L. D. MacLEAN *(Experimental Surgery;* J. MILLER *(Orthopaedic Surgery);*
G. MORGENSTERN *(Psychiatry);* M. REESAL *(Pathology);*
A. ROTENBERG *(Joint Hospital Computer Services)*

D3.2 COURSES FOR HIGHER DEGREES

Note that all courses are not necessarily given every year. Prospective students are advised to inquire in September for details (Local 4328).

399-611B. BIOLOGICAL CONTROL SYSTEM THEORY. (3 lectures, second term.) Control system structure and information flow: homeostasis and neuromuscular systems; neuromuscular control, locomotion, oculomotor system, respiration, the human operator, thermo-regulation, cardiovascular control, endocrine control systems; adaptive and optimizing control structure and theory, performance criteria; growth, positive feedback and mutual causality.

399-613B. SENSORY COMMUNICATION THEORY. (3 lectures, second term.) Sensory receptors and neural coding; signal transmission and aspects of information processing in the vestibular, auditory, and visual systems; neural modelling; methods of pulse frequency modulation and analysis of multi-unit multipath neural communication; information processing in theoretical neural networks. Student projects. PROFESSOR LEE

399-621B. ENGINEERING BIOPHYSICS. B. (3 lectures, first term.) Biochemical thermodynamics; criteria for equilibrium; phase equilibrium; chemical reaction equilibrium; the equilibrium constant, electro-chemical cell potentials, ATP degradaton; chemical kinetics; fluid flow; mass transfer; biological role of water; bio-macromolecules; proteins, nucleic acids, polysaccharides, polyelectrolytes; biological effects of ionizing radiation; buffers, osmotic pressure, acid-base balance. PROFESSOR NEAL

399-622A. ENGINEERING BIOPHYSICS. (3 lectures, second term.) Membranes: structure, electrical properties, passive transport, active transport; models of membrane; nerve conduction. Biological control at molecular level. Microscopy. X-ray diffraction. Radioactivity. Biophysical instrumentation and measurements.

399-623B. PRINCIPLES OF MEDICAL SCIENCE. (2 lectures, second term; *Prerequisite:* Physiology 552-211D or equivalent.) This course is designed to acquaint engineers with the principles and techniques of clinical practice and research, emphasizing those areas where bio-engineering may contribute. Sessions are held in the McGill-associated hospitals, each led by a medical specialist. Specialized areas studied include: diagnosis; iron metabolism; ECG's, pacemakers and intensive-care cardiac units; respiratory function, disease and xenon measurements; artificial dialysis; general and orthopaedic surgery. STAFF

399-631B. BIOMEDICAL ENGINEERING TECHNIQUES AND INSTRUMENTATION. (3 lectures, second term.) The purpose of this course is to introduce graduate students to selected topics in the area of application of technology, systems theory and computer science to problems in health care delivery. The level of presentation will assume adequate mathematical and technological background, including differential equations, transform techniques, basic instrumentation and computer programming. The material presented in this course changes every year allowing in-depth exploration of different areas of biomedical engineering activity. Students are asked to inquire about this course in the first term and to participate actively in a discussion on possible topics at the end of November. Major areas of interest are: methods of bio-signal analysis, computer evaluation of ECG, industrial engineering methods in hospitals, computer applications in clinical laboratories and intensive care units, health information systems. Structured student projects are part of this course.
PROFESSOR LASZLO AND STAFF

399-641A. SYSTEM CONCEPTS AND COMPUTER APPLICATIONS FOR BIOLOGY AND MEDICINE. (2 lectures, 2 laboratories, first term.) Basic concepts and methods necessary for the application of computer and system techniques in physiology and medicine. The course is designed to enable the life scientist to utilize recent practical and theoretical advances in engineering and data analysis. In the laboratories, participants will be given the opportunity to use various computers and work on particular problems of their choice.
PROFESSOR LASZLO

D 4 DENTISTRY

D4.1 STAFF

Professor — E. R. AMBROSE

Associate Professors — K. C. BENTLEY *(Director — Oral Surgery);* R. F. HARVEY; R. G. JONES; J. J. McCARTHY; E. P. MILLAR; A. ORTIZ; H. ROSEN *(Director — Restorative Dentistry and Prosthodontics)*

Assistant Professors — D. S. SHAPIRO; J. W. STAMM

Lecturer — G. L. FREEDMAN

Guest Lecturers — J. FISET; D. C. GORDON; H. L. MUSSELLS; F. E. SHAMY; H. SKURNIK; J. VALIQUETTE; J. VINCELLI

D4.2 REQUIREMENTS FOR THE DIPLOMA IN RESTORATIVE DENTISTRY AND PROSTHODONTICS

Admission is restricted to candidates who hold the D.D.S. or an equivalent degree with good standing from an approved institution. Preference will be given to those applicants who have been in general practice or rotating internships for at least one year. The diploma program requires one academic session of ten months. Disciplines involved are: Advanced Operative Dentistry, Fixed Prosthodontics, Maxillo Facial Prosthesis, Removeable Prosthodontics, as well as supportive and allied clinical sciences. The program will consist of didactic lectures, case-presentation seminars, treatment of clinical cases under supervision, reports on clinical cases, teaching assistantship, and selected office visits. Candidates will be required also to attend pertinent lectures in pathology and anatomy. Financial support may be available. For further information apply to Dr. Harry Rosen, Faculty of Dentistry.

D 5 DEPARTMENT OF EPIDEMIOLOGY AND HEALTH

D5.1 STAFF

Professors — S. S. LEE *(Acting Chairman);* F. D. K. LIDDELL; J. C. McDONALD; F. W. MOUNT

Associate Professors — D. G. BATES; M. R. BECKLAKE; A. D. McDONALD; P. V. PELNAR

Assistant Professors — A.-P. CONTANDRIOPOULOS; S. DUCIC; F. R. FENTON; G. W. GIBBS; B. HENEMAN; J. W. LELLA; J. G. LOHRENZ; J. MANFREDA; J.-C. MARTIN; S. H. SHAPIRO; J. STAMM; N. STEINMETZ

Lecturers — D. C. BEWS; L. DAVIGNON; G. EYSSEN; I. HOROWITZ; B. POLLACK; J. SWIFT; D. C. THOMAS; F. M. M. WHITE

Instructor — R. WEST

D5.2 REQUIREMENTS

D5.2.1 ADMISSION

Candidates for the Diploma and higher degrees will normally be medical or dental graduates of above-average ability. An applicant that is not so qualified may be considered if he has special skills or interests. For the Diploma and M.Sc., the minimum qualification for admission is a B.Sc. with at least second class Honours or the equivalent in a relevant subject; candidates for the Ph.D. must hold an acceptable Master's degree or equivalent. Acceptance of a candidate for the M.Sc. or Ph.D. degree is contingent upon approval of a general plan of research.

D5.2.2 DIPLOMA IN EPIDEMIOLOGY

A course of study of one academic year. Students must complete at a satisfactory level (or be exempted from) the following Courses: 513-602A, 606A, 607A (given in the first two months); 513-010D, 604D, 608B, 609A, 622D; and at least one of 513-611B, 612B, 613B, 621B. In addition, each student will be expected to undertake a project investigation and write a report on it.

D5.2.3 M.Sc. IN EPIDEMIOLOGY AND MEDICAL STATISTICS

Candidates must pass examinations in (or be exempted from) the same courses as given above for Diploma students, or otherwise pass a comprehensive general examination. The student must thereafter submit a thesis on an approved subject of research.

D5.2.4 Ph.D. IN EPIDEMIOLOGY AND MEDICAL STATISTICS

After at least one year's instruction, training and direction, the student must satisfy the Department of his knowledge of the particular subject and of the general field of epidemiology. To this end, students may be required to take some or all of the courses listed below. The candidate must submit a thesis, but no earlier than a year after this comprehensive examination.

D5.3 COURSES FOR HIGHER DEGREES AND DIPLOMA

513-010D. PRINCIPLES OF DATA PROCESSING IN HEALTH SCIENCES. (40 hours.) Lectures, demonstrations and supervised practical work covering: the need for data processing in the health sciences; elements of the computer system; what computers cannot do; uses of card punch, verifier, sorter, edge-punched cards, desk computer, desk calculators; systems selection; form and questionnaire design; edit procedures, control procedures; program specifications; package programs.

513-602A. PRINCIPLES OF HEALTH STATISTICS. (20 hours.) An introductory course concerned with measures of population, health and health service utilization; standardization; life tables and survivorship; cohorts and competing risks; and comparative health statistics.

513-604D. GRADUATE SEMINARS. Seminars of departmental interest, scientific meetings and health care research workshops.

513-605D. COURSE FOR M.Sc. AND Ph.D. CANDIDATES. Prescribed course of study to meet the candidates' particular requirements.

513-606A. PRINCIPLES OF EPIDEMIOLOGIC INVESTIGATION. (20 hours.) An introductory course covering the following topics: epidemiologic analysis; role of environmental and inherited factors in disease susceptibility; observation, measurement and classification in clinical trials; principles of operational research.

513-607A. PRINCIPLES OF INFERENTIAL STATISTICS IN MEDICINE. (20 hours.) An introductory course covering the following topics: variability and the need for statistics; confidence and significance; decisions; some basic statistical techniques; recognition of problems where these techniques are not applicable; design of experiments in relation to available tools of analysis.

513-608B. ADVANCED EPIDEMIOLOGY. (60 hours.) During this course a small number of selected topics within epidemiology or health care research are reviewed by the students. A tutor is available for each topic and students are asked to review the present state of

knowledge and suggest practical lines for further investigation. The course provides much time for personal study and requires participation in seminars and written presentation.

513-609A. PRINCIPLES OF MEASUREMENT IN EPIDEMIOLOGIC SURVEY. (40 hours.) Lectures, discussion and field visits to examine, with experts from different fields, principles in the measurement of man and his environment of epidemiologic interest.

503-611B. ELECTIVE IN HEALTH CARE STUDIES. (60 hours.) An elective course providing opportunity for detailed study through seminars, guided reading, etc. on the assessment of demand, need, efficiency and efficacy in relation to health services, with particular reference to the evolution and implementation of public policy in the health field.

513-612B. ELECTIVE IN ENVIRONMENTAL HEALTH. (60 hours.) An elective course providing opportunity for detailed study by seminars, guided reading, visits and assignments, to acquaint the student with principles of assessment of interactions between man and environment and with principles and organisation of prevention of damage to health from environmental hazards.

513-613B. SPECIAL TOPICS IN EPIDEMIOLOGY AND HEALTH: ELECTIVE (60 hours.) A course providing opportunity for detailed study by seminars, guided reading, visits, practicals, assignments, etc. of an elected and approved topic of epidemiological importance.

513-621D. STATISTICAL PROCEDURES IN MEDICINE (60 hours.) Lectures, discussion and guided practical work in the statistical procedures required in epidemiology, clinical research and health care studies.

503-622D. SEMINAR ON THE APPLICATIONS OF STATISTICS IN THE HEALTH SCIENCES. (60 hours.) Two overlapping series of seminars. In one, the students will be taught about the statistical problems arising in a wide range of current projects in the Faculty of Medicine; in the other, the students will make presentations providing solutions to these problems.

D 6 SCHOOL OF HUMAN COMMUNICATION DISORDERS

The School of Human Communication Disorders offers both professional and research training. The research program leads to the M.Sc. and Ph.D. degrees.

D6.1 STAFF

Professor — D. G. DOEHRING *(Research Director)*

Associate Professor — D. LING *(Director)*

Assistant Professors — B. BARTHOLOMEUS; K. K. CHARAN; A. H. LING *(Part-time)*; M. SEITZ

Lecturers — M. CARDOZO; N. CHAN; J. DUDLEY; D. LECKIE; D. MOSCOVITCH; P. RIDGEWAY

D6.2 REQUIREMENTS

D6.2.1 REQUIREMENTS FOR THE M.Sc. (APPLIED) DEGREE

A limited number of candidates with undergraduate standing equivalent to second-class honours or better are accepted each year from McGill and elsewhere. Because of the rapidly-changing state of knowledge regarding speech and hearing disorders, emphasis is placed upon understanding of fundamental principles and critical evaluation of current methods rather than upon the teaching of specific techniques for diagnosis and therapy. Every effort is made to encourage active participation in the learning process in order that the student is prepared to function as a creative professional worker rather than as a technician.

This is normally a two-year program for which all candidates are required to present undergraduate preparation in closely allied areas appropriate to plans for specialization. The prerequisite subjects are three courses in psychology, and a course in statistical methods or an equivalent course. A knowledge of physics, mathematics, physiology, phonetics, linguistics, and modern developments in other related social sciences is desirable. In some cases, a qualifying year may be required before admission as a candidate for a degree. Candidates will normally follow a program in course work selected from those listed below. Each course is subdivided into several topics which are presented in 7-week blocks under different instructors. Students are allowed some choice in the selection of topics within a course. A three-month internship will be taken after the second year.

D6.2.2 REQUIREMENTS FOR THE M.Sc. AND Ph.D. DEGREES

Selected candidates may be nominated to the Faculty for a program of studies leading to the M.Sc. and Ph.D. degrees. In most cases, only applicants with prior training in some aspect of human communication disorders will be accepted as candidates for research degrees.

D6.3 COURSES FOR HIGHER DEGREES

401-610D. BASIC SCIENCE OF HUMAN COMMUNICATION.
401-611D. PSYCHO-ACOUSTICS AND AUDIOLOGY.
401-612D. PHYSIOLOGY OF SPEECH AND HEARING.
401-613D. SPEECH AND LANGUAGE PATHOLOGY.
401-620D. ADVANCED LANGUAGE PATHOLOGY.
401-621D. ADVANCED AUDIOLOGY.
401-622D. ADVANCED SPEECH PATHOLOGY.
401-623D. REHABILITATION OF THE AURALLY HANDICAPPED.
401-630D. PRACTICUM.
401-640D. RESEARCH METHODS.
401-641D. RESEARCH SEMINAR.
401-650D. SEMINAR IN HUMAN COMMUNICATION DISORDERS.
401-660D. LECTURES AND RESEARCH ON SELECTED ADVANCED TOPICS.

D7 73/74 DEPARTMENT OF EXPERIMENTAL MEDICINE

D7.1 STAFF

Professors — J. C. BECK *(Chairman)*; M. R. BECKLAKE; E. H. BENSLEY; B. A. COOPER; R. F. P. CRONIN; J. H. DIRKS; H. G. FRIESEN; C. J. P. GIROUD; P. GOLD; H. L. GOLDSMITH; M. S. GOLDSTEIN; C. GORESKY; A. L. JOHNSON; J. KESSLER; P. T. MACKLEM; M. McGREGOR; J. M. McKENZIE; J. MILIC-EMILI; B. ROSE; S. SOLOMON

Associate Professors — N. R. ANTHONISEN; R. BLOSTEIN; J. H. BURGESS; J. C. CRAWHALL; N. M. K. deLEEUW; J. DUPRÉ; R. J. GARDINER; L. GOODFRIEND; R. D. GUTTMANN; N. KALANT; G. A. KLASSEN; E. McGARRY; M. J. MILLER; B. E. P. MURPHY; W. H. PALMER; H. G. ROBSON; D. RUBENSTEIN; J. R. RUEDY; D. B. TONKS; R. D. WILKINSON

Assistant Professors — B. BAIN; C. H. BASTOMSKY; B. BHAVNANI; K. G. DAWSON; E. L. FALLEN; G. GIANNAPOULOS; A. GONDA; E. GORDON; J. HOGG;

K. ITIABA; M. JERRY; A. KAHLENBERG; S. KASAKURA; J. KLASSEN; J. KRUPEY; M. LEVY; O. A. MAMER; R. MARTIN; S. MISHKIN; L. A. MOROZ; B. POSNER; E. Z. RABIN; A. ROTENBERG; H. M. SCOTT; J. SEELY; J. SHUSTER; S. SOLOMON; A. TENENHOUSE; A. VOST; M. ZAKARIJA; D. T. ZBOROWSKA-SLUIS

Lecturers — T. HUBSCHER; P. KOCH; P. SCHNEIDER

ASSOCIATED MEMBERS

Professors — A. BARBEAU; R. BOUCHER; J. GENEST; O. KUCHEL; A. LANTHIER; W. J. NOWACZYNSKI

Associate Professors — T. SANDOR; A. VIALLET

Assistant Professors — M. CHRETIEN; J. DAVIGNON; A. G. FAZEKAS; J. M. ROJO-ORTEGA; M. SOMMA; D. TRACHEWSKY; O. H. WILSON

Lecturers — J. R. DUCHARME; C. DUFAULT; G. LEMIEUX; C. L. MORIN

The Department offers courses leading to the M.Sc. and Ph.D. degrees in the Faculty of Graduate Studies and Research and provides research facilities for these students. The M.Sc. degree is only offered to graduate students with an M.D.

Students may work either in the University Clinic, Montreal General Hospital; University Clinic, Royal Victoria Hospital; or in any other approved laboratories forming part of the teaching hospital complex of either McGill University or the University of Montreal, depending on the individual directing the research.

Students holding either the M.D. or the B.Sc. degree or its equivalent may enter the department provided that their standing is acceptable.

No language examination is required for the Ph.D. degree.

D7.2 COURSES FOR HIGHER DEGREES

D7.2.1 COURSES

516-602D. ADVANCED ENDOCRINOLOGY — STEROID HORMONES.

516-604D. CELLULAR BIOLOGY.

516-610D. BIOCHEMICAL METHODS IN MEDICAL RESEARCH.

Courses Given Jointly with Dept. of Physiology

516-606A. ADVANCED APPLIED CARDIOVASCULAR PHYSIOLOGY.
PROFESSORS FALLEN AND GOLDSMITH

516-607D. ADVANCED APPLIED RESPIRATORY PHYSIOLOGY.
PROFESSORS ANTHONISEN AND BURGESS

516-608A. ADVANCED RENAL AND ELECTROLYTE PHYSIOLOGY.
PROFESSORS DIRKS, LEVY AND SEELY

516-609B. MEMBRANES: BIOPHYSICS' PHYSIOLOGY AND CLINICAL APPLICATION.
PROFESSOR BLOSTEIN

516-610B. BIOPHYSICS. (Not offered in 1973-74).

516-612B. PHYSICAL METHODS IN BIOLOGICAL RESEARCH. STAFF

516-613A. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART I.
PROFESSORS GOLD AND LAPP

516-614B. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART II.
PROFESSORS GOLD, GUTTMAN AND LAPP

516-615B. PHYSIOLOGY OF BLOOD. PROFESSOR COOPER

D7.2.2 SCHEDULED GRADUATE SEMINARS

D7.2.2.1 The Royal Victoria Hospital (1 hour per week)

RESPIRATORY RESEARCH.

IMMUNOPATHOLOGY.

ENDOCRINOLOGY AND METABOLISM.

HAEMATOLOGY RESEARCH.

RENAL AND ELECTROLYTE SEMINAR.
RENAL TRANSPLANT SEMINAR.
GASTROENTEROLOGY CONFERENCE.
DIABETES CONFERENCE.
CHEST-CARDIAC DISEASE CONFERENCE.
CLINICAL ENDOCRINOLOGY CONFERENCE.
STEROID BIOCHEMISTRY RESEARCH.
HAEMATOLOGY CLINICAL CONFERENCE.
ENDOCRINOLOGY AND METABOLISM RESEARCH CONFERENCE.
CLINICAL IMMUNOLOGY CONFERENCE.
ARTHRITIS CONFERENCE.
INTERNAL MEDICINE.
DERMATOLOGY RESEARCH.
UNIVERSITY CLINIC SEMINAR.
CARDIOLOGY RESEARCH.

D7.2.2.2 **The Montreal General Hospital**
(1 hour per week, or in some cases alternate week)

GASTROENTEROLOGY CONFERENCE.
RESPIRATORY DISEASES.
DERMATOLOGY.
INTERNAL MEDICINE.
ALLERGY AND IMMUNOLOGY.
INFECTIOUS DISEASES.
COMBINED STAFF CONFERENCE.
HAEMATOLOGY.
ARTHRITIS.
METABOLIC DISEASES.
CARDIAC DISEASE.
RENAL DISEASE.
NEUROLOGY — NEUROSURGERY.
UNIVERSITY MEDICAL CLINIC CONFERENCE.

D8 DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

D8.1 STAFF

Professors — S. I. VAS *(Chairman)*; B. H. MATHESON; J. W. STEVENSON; W. YAPHE

Associate Professors — Z. ALI-KHAN; C. A. BUTAS; E. C. S. CHAN; P. GILL; P. M. COOKIE; J. de VRIES*; L. KAPICA; G. K. RICHARDS*; H. G. ROBSON; R. SIBOO

Assistant Professors — H. ABRAMOVITCH; M. BRAZEAU*; K. D. ELIE*; E. MANKIEWICZ*; J. MENDELSON*; J. GORDON*

Lecturers — W. DION*; S. NOMMIK*; E. WOOD

Demonstrator — C. SHAW*

Teaching Assistants — D. CRISTEANU; L. THERRIEN

**Part-time.*

D8.2 REQUIREMENTS

Candidates are required to hold a B.Sc. degree with at least second class Honours or the equivalent in Microbiology and Immunology or the M.D. degree with high standing in Microbiology, Biochemistry and Pathology. Those who do not meet the above qualifications may be required to take a two-year Master's program in order to complete course requirements.

D8.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates who satisfy the general qualifications above may present themselves for examination for the M.Sc. degree after not less than one full year of research. The following requirements must be satisfied: (1) Presentation of a satisfactory thesis. (2) Attendance at Course 528-602D and presentation of at least one seminar topic during the year. (3) A comprehensive examination in Microbiology and Immunology (Course 528-601D) must be passed.

D8.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Following satisfactory completion of the work for the M.Sc. degree candidates may present themselves for examination for the Ph.D. degree after not less than two full years of research. The candidate will be judged principally on his research ability and on the presentation of a satisfactory thesis. However, certain other requirements must also be fulfilled: (1) Attendance at Course 528-702D with the presentation of at least one seminar topic each year. (2) A comprehensive examination in Microbiology and Immunology (Course 528-701D) must be passed. It is held during the final year of study and at a time not later than six months before submission of the thesis.

D8.3 COURSES FOR HIGHER DEGREES

SPECIAL FACILITIES: The clinical laboratory services in bacteriology, virology and mycology are available to candidates as a means of instruction and as a source of material for study.

D8.3.1 ADVANCED UNDERGRADUATE COURSES

528-313B. PARASITOLOGY.
528-315B. THE PATHOGENIC FUNGI *(Not offered in 1973-74.)
528-421A. SYSTEMATIC BACTERIOLOGY.
528-422B. PATHOGENIC BACTERIA.
528-423A. MICROBIAL PHYSIOLOGY.
528-424A. FUNDAMENTAL VIROLOGY.
528-425B. PATHOGENIC VIRUSES.
528-451B. TECHNIQUES IN MICROBIAL PHYSIOLOGY.

D8.3.2 GRADUATE COURSES

528-601D. COMPREHENSIVE EXAMINATION FOR M.Sc. CANDIDATES.
528-602D. GRADUATE SEMINAR — MASTER'S LEVEL.
528-701D. COMPREHENSIVE EXAMINATION FOR Ph.D. CANDIDATES.
528-702D. GRADUATE SEMINAR — Ph.D. LEVEL. Lectures and discussions once a week. All graduate students are required to participate.
528-703D. CURRENT TOPICS IN MICROBIOLOGY AND IMMUNOLOGY. (Discussion groups.)

D9 DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

73/74

D9.1 STAFF

Professors — W. H. FEINDEL *(Chairman);* D. BAXTER; G. BERTRAND; R. GILBERT; P. GLOOR; F. L. McNAUGHTON; BRENDA MILNER; T. B. RASMUSSEN; J. P. ROBB; J. STRATFORD; L. WOLFE

Associate Professors — A. AGUAYO; F. ANDERMANN; J. BLUNDELL; S. CARPENTER; J. B. R. COSGROVE; R. ETHIER; I. HELLER; D. LAWRENCE; G. MATHIESON; HANNA PAPPIUS; A. L. SHERWIN; D. TROP; G. WATTERS

Assistant Professors — G. BRAY; G. COSSETTE; C. DILA; A. A. EISEN; M. H. FINLAYSON; R. FORD; B. GRAHAM; R. HANSEBOUT; GEORGE KARPATI; I. LIBMAN; J. MARTIN; D. MELANCON; KATHERINE METRAKOS; A. MORTON; A. OLIVIER; W. F. T. TATLOW; ELIZABETH WILKINSON; J. WOODS; L. YAMAMOTO

Lecturers — G. BELANGER; R. HOLLENBERG; J. R. IVES; W. OLANOW; S. PRELEVIC; A. M. SCHWARTZ; CLARA STRAUSS; L. TAYLOR; C. THOMPSON

D9.2 REQUIREMENTS

D9.2.1 ADMISSION

Candidates for graduate degree must first meet the general qualifications and requirements for admission to the Graduate School (for M.Sc. degrees see Section 4 and for Ph.D. degrees see Sections 18-27 of Faculty Regulations). A candidate must advise his prospective Research Director of his intent to enrol in a graduate study program leading to either an M.Sc. or a Ph.D. degree by May 15. The candidate's study program must be approved by 1) the director of the candidate's research and 2) by the Committee of Graduate Studies of the Department of Neurology and Neurosurgery. Registration as a graduate student cannot take place without the approval of this Committee.

The M.Sc. program is a two-year program. In exceptional cases upon recommendation by the Committee of Graduate Studies of the Department of Neurology and Neurosurgery this requirement may be reduced to a one year program for students who spend one full year of laboratory research.

The Ph.D. Program is a three-year program. For M.D.s it is not necessary to obtain an M.Sc. first.

D9.2.2 COURSE REQUIREMENTS

a) NEUROSCIENCES SEMINAR (Courses 531-602H) for two years with satisfactory examination at the end of each year. This seminar represents the "core program" of the graduate studies program of the Department of Neurology and Neurosurgery. The complete course extends over two years.

b) SELECTED BASIC SCIENCE COURSES from undergraduate or graduate programs in other departments or special courses in subdepartments within the Department of Neurology and Neurosurgery. The courses will be selected at the beginning of the student's Graduate Program after discussion with the candidate's Research Director and the Committee of Graduate Studies of the Department of Neurology and Neurosurgery. The courses will be selected to fill in or complement the student's background in the particular specialty of his graduate studies. Satisfactory credit for these courses has to be obtained. The method whereby the candidate is to be given credit is left to the discretion of the course directors involved and of the Director of the candidate's research, and will require some form of examination or an acceptable substitute.

c) SPECIALTY DISCUSSION GROUP AND SEMINARS. These seminars will be given informally in the various subdepartments and laboratories of the Department of Neurology and Neurosurgery. Recent developments and ideas will be reviewed with particular emphasis on critical discussion of current literature and experimental designs. No formal credit is required except for a reasonably regular record of attendance and active participation in seminar work.

d) LANGUAGE REQUIREMENT (for Ph.D. candidates only: French or German). A passing grade in one examination for either one of these languages is required. Another language cannot be substituted without approval by the Committee of Graduate Studies of the Department of Neurology and Neurosurgery.

e) PRESENTATION OF A THESIS. The final draft of the thesis has to be submitted to the candidate's Research Director at least 60 days before the deadline for submission of the final copy to the Faculty of Graduate Studies and Research.

D9.3 GRADUATE COURSES

531-602H. NEUROSCIENCES SEMINAR. Presentation and discussion of representative topics in the Neurosciences. This course covers both scientific aspects of Clinical Neurology and Neurosurgery and the Basic Neurosciences. The complete course extends over two years and represents two course units.

SPECIALTY DISCUSSION GROUPS AND SEMINARS. For details, see above under "Requirements" and Faculty of Medicine Calendar.

D10 DEPARTMENT OF OTOLARYNGOLOGY

D10.1 STAFF

Professors — J. D. BAXTER *(Chairman)*; D. G. DOEHRING

Associate Professors — D. LING; R. H. McCOY; E. J. SMITH

Assistant Professors — K. K. CHARAN; J. DUDLEY; C. FANKHAUSER; C. A. LASZLO; M. MENDELSOHN; D. MOSCOWITCH; W. H. NOVICK; G. SHIMO; J. S. OUTERBRIDGE

Lecturers — E. ATTIA; A. COHEN; A. GROSSMAN; M. N. LEVITT; R. W. MacMILLAN

Demonstrator — R. LAFLEUR

D10.2 REQUIREMENTS FOR THE M.Sc. DEGREE

Students must hold an M.D. degree with appropriate prerequisites.

The major part of the student's time will be spent in research and a thesis covering this work will be the major requirement for the degree. In addition the student will be required to attend certain courses given in the Department and in cooperating departments.

D10.3 GRADUATE COURSES

540-602D. ADVANCED COURSE IN PHYSIOLOGY, HISTOPATHOLOGY AND CLINICAL OTOLARYNGOLOGY.

540-603D. LECTURES IN BASIC SCIENCES OF OTOLARYNGOLOGY.

Each student will be required to take certain courses in cognate subjects, such as Neuroanatomy, Neurophysiology, Medical Statistics and Physiology Instrumentation. The courses to be taken will depend upon the candidate's background and the research problem being studied.

D11 DEPARTMENT OF PATHOLOGY

D11.1 STAFF

Professors — DR. ROBERT H. MORE *(Chairman);* DR. R. BOLANDE; DR. W. P. DUGUID; DR. S. N. HUANG; DR. D. S. KAHN; DR. G. RONA; DR. H. SHELDON; DR. W. M. THURLBECK; DR. G. TREMBLAY; DR. F. W. WIGLESWORTH

Associate Professors — DR. S. CARPENTER; DR. J. HOGG; DR. E. HOSEIN; DR. J. P. A. LATOUR; DR. K. G. MARSHALL; DR. G. MATHIESON; DR. D. MURRAY; DR. W. J. PIROZYNSKI; DR. M. REESAL

Assistant Professors — DR. M. N. AHMED; DR. G. BERRY; DR. M. H. FINLAYSON; DR. W. HAUSER; DR. W. S. HWANG; DR. M. E. KIRK; DR. J. KNAACK; DR. J. R. C. LACHANCE; DR. J. O. LOUGH; DR. MOINUDDIN; DR. D. R. MURPHY; DR. J. B. RICHARDSON; DR. P. SCHOPFLOCHER; DR. T. SEEMAYER; DR. W. THELMO; DR. N. S. WANG; DR. J. L. WEBB; DR. B. I. WEIGENSBERG

Lecturers — DR. J. BELAND; DR. D. BISHOP; DR. P. BOLDUC; DR. M. L. deCHAMPLAIN; DR. J. EMOND; DR. F. GOMES; DR. I. KERNER; DR. M. B. MACKENZIE; DR. L. A. OLIVA; DR. J. VILORIA; DR. B. M. WOLANSKYJ

D11.2 REQUIREMENTS

Ordinarily candidates for a graduate degree in Pathology should have received an M.D., D.V.M. or D.D.S. Students who have obtained a B.A. or B.Sc. or other degree may be considered for postgraduate training. At the end of the first postgraduate year, the candidate must demonstrate a satisfactory knowledge of general and special pathology, and of the methodology in his field of interest. Work published or accepted for publication during enrolment in the doctorate program is suitable for partial fulfilment of these requirements. Three years residence is normally required of a Ph.D. candidate. There is no language requirement for a doctorate in Pathology.

D11.3 COURSES FOR HIGHER DEGREES

546-121M. GENERAL BIOLOGY OF DISEASE. A co-ordinated course to be presented by the Department of Epidemiology and Health, Genetics, Microbiology and Immunology, and Pathology during the third and fourth quarters. The course will be centred around the concept that disease results through the interaction of host and environmental factors.
DR. MORE AND STAFF

546-221M. SPECIAL BIOLOGY OF DISEASE. A twenty-three week co-ordinated program during the first, second and third quarters which will present a general introduction followed by an organ-system approach to disease.
DR. MORE AND STAFF

546-321M. CLINICAL PATHOLOGICAL CONFERENCE. Weekly, prepared discussion in small group.
DR. KNAACK

546-504B. DISEASE IN DEPTH. Two weeks of case studies on each of five topics, e.g., cardiovascular, renal, liver, endocrine, pulmonary disease, for a small number of students.
DR. THURLBECK AND STAFF

546-606D. CLINICAL PATHOLOGY COURSES.
DR. REESAL

546-607A. BIOCHEMICAL PATHOLOGY. A consideration of biochemical alterations involved in disease states.

546-608A. BIOCHEMICAL AND ULTRASTRUCTURAL ASPECTS OF BLOOD. Ultrastructural and biochemical features of blood elements.

546-609A. CELL REACTION TO MICROBIOLOGICAL AGENTS.

546-701D. COMPREHENSIVE EXAMINATION FOR Ph.D. CANDIDATES. SUPERVISOR AND STAFF

D11.3.1 SCHEDULED GRADUATE SEMINARS (Pathological Institute)

The student may be expected to attend certain scheduled Departmental Seminars.

546-610D. AUTOPSY REVIEW CONFERENCE. (3 hours/week.) DR. THELMO

546-611D. SURGICAL REVIEW CONFEFRENCE. (2 hours/week.) DR. SEEMAYER

546-612D. COMPLETED CASE CONFERENCE. (1 hour/week.) DR. THELMO AND DR. SEEMAYER

546-613D. DEPARTMENTAL RESEARCH SEMINAR. (1 hour/week.) DR. HOGG AND STAFF

D12 DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

The department offers work leading to the M.Sc. and Ph.D. degrees for students who have completed the B.Sc., M.Sc., M.D. or an equivalent degree with high academic standing. All applicants including McGill students are usually required to take the Graduate Record Examination Aptitude Test and to have letters of recommendation. Except for certain students holding the M.D. degree, the M.Sc. in pharmacology is not recommended as a primary objective. In addition to work in this department, students may be required to make up deficiencies in ancillary subjects such as biochemistry and physiology. Facilities are available for work in neuropharmacology, cardiovascular and renal pharmacology, autonomic pharmacology, biochemical pharmacology, drug metabolism, and clinical pharmacology. A student is usually expected to undertake studies in several of these areas before selecting one for his thesis work.

Inquiries relating to all aspects of graduate study should be directed to the Director of Graduate Studies, Department of Pharmacology and Therapeutics as early as possible in each academic year.

D12.1 STAFF

Professors — M. NICKERSON *(Chairman)*; J. LOWENTHAL

Associate Professors — B. G. BENFEY; N. R. EADE; L. E. FRANCIS; J. R. RUEDY; D. R. VARMA

Assistant Professors — R. CAPEK; L. CHUNG; B. COLLIER; B. ESPLIN; G. KATO; E. M. KOVACS; A. H. NEIMS; R. I. OGILVIE; R. E. RANGNO; J. B. RICHARDSON; M. C. ROBERTSON; B. I. SASYNIUK; A. M. TENENHOUSE; J. M. TRIFARO; M. S. YONG

Lecturers — R. O. DAVIES; F. HERR

D12.2 COURSES FOR HIGHER DEGREES

A basic course in Pharmacology is required for graduate students who have not previously taken an equivalent course. This is usually 549-461D (GENERAL PHARMACOLOGY) which includes consideration of the effects and mechanism of action of the more important groups of drugs.

The following courses are designed primarily for graduate students, but may be attended by others under special circumstances. These courses are given in a variable sequence depending on the interests and requirements of graduate students enrolled in the department.

*549-702B. BIOCHEMICAL PHARMACOLOGY. Interaction of natural and synthetic chemicals with subcellular or molecular entities in living systems.

549-703A. NEUROPHARMACOLOGY. The basic actions of drugs affecting axonal conduction and synaptic transmission, with particular emphasis on the central nervous system.

549-704B. DRUG DISTRIBUTION, METABOLISM AND EXCRETION. Mechanisms by which the body handles endogenous and foreign chemicals and the effects of these processes on the characteristics of drug action.

*549-705B. CARDIOVASCULAR REGULATION AND DRUG ACTION. Homeostatic regulation of cardiovascular function and its modification by drugs.

*549-706A. CHEMICAL MEDIATORS AND AUTONOMIC DRUGS. Interactions of drugs and chemical mediators to mimic, augment or inhibit responses to peripheral nerve activity.

*549-707A. MOLECULAR PHARMACOLOGY. Actions of drugs on specific tissue receptors; relationship of physical and chemical properties to the characteristics of drug action.

73/74

D13 DEPARTMENT OF PHYSIOLOGY

Candidates who as undergraduates have satisfactorily completed courses in Physiology to a high standard may present themselves for examination for the M.Sc. degree at the end of one year's graduate work in the Department. Others will have to spend a longer time in preparation, or take a qualifying year. Candidates for the Ph.D. degree must pass a general examination in Physiology and are expected to participate in the Physiology Research Club Seminars. They will be judged principally by the ability they display in research. Candidates for either degree are usually expected to attend at least two of the graduate courses listed below, in their first year. Subsequent course requirements will depend on their field of study.

The main research interests of the Department are at present the chemical and electrical behaviour of the nervous system, electron microscopy and muscle physiology, the release of physiologically active substances from tissues, transplantation reactions and tissue specificity, respiratory mechanics and control of ventilation, studies of sodium excretion in experimental edema, the biophysics of the muscle and of mechanoreceptors, labyrinthine responses to acceleration, enzyme technology, artificial kidneys, the study of the effects of air pollutants on the human lung, hemostasis, fetal and neonatal circulation.

D13.1 STAFF

Professors — J. MILIC-EMILI *(Chairman);* R. I. BIRKS; T. M. S. CHANG; K. KRNJEVIC; F. C. MacINTOSH; G. MELVILL JONES

Associate Professors — R. F. P. CRONIN; J. H. DIRKS; D. R. FIRTH; P. GOLD; C. POLOSA; P. SEKELJ

Assistant Professors — M. W. COHEN; M. M. FROJMOVIC; V. KLISSOURAS; W. S. LAPP; M. LEVY; M. MACKEY; G. MANDL; J. S. OUTERBRIDGE; A. WECHSLER; R. L. WILLIAMS

Visiting Assistant Professor — F. KIRCHNER (Heidelberg)

Lecturers — M. HAZUCHA; P. WELDON

Associate Members — N. R. ANTHONISEN *(Assoc. Prof. Exp. Medicine);* M. E. AVERY *(Prof. Paediatrics);* B. A. COOPER *(Prof. Exp. Medicine);* B. O. DUBROVSKY *(Assist. Prof. Psychiatry);* E. FALLEN *(Assist. Prof. Medicine);* H. L. GOLDSMITH *(Prof. Exp. Medicine);* C. A. GORESKY *(Prof. Medicine);* C. A. LASZLO *(Asst. Prof. Biomedical Engineering);* P. T. MACKLEM *(Prof.*

Medicine); J. M. McKENZIE *(Prof. Exp. Medicine)*; M. M. MORRIS *(Assist. Prof. Anaesthesia)*; D. H. MOSCOVITCH *(Assist. Prof. Otolaryngology)*; J. F. SEELY *(Assist. Prof. Exp. Medicine)*

D13.2 COURSES FOR HIGHER DEGREES

All courses are half courses xecept for 552-607D.

552-602A. EXERCISE PHYSIOLOGY. (Not offered in 1973-74.) Offered in conjunction with Faculty of Education. PROFESSORS KLISSOURAS AND MILIC-EMILI

552-603A. THE NERVOUS SYSTEM: STRUCTURE AND FUNCTION. PART I. (Not offered in 1973-74.) PROFESSORS COHEN, MANDL, POLOSA AND KRNJEVIC

552-604B. THE NERVOUS SYSTEM: STRUCTURE AND FUNCTION. PART II. (Not offered in 1973-74.) PROFESSORS COHEN, MANDL, POLOSA AND KRNJEVIC

552-605B. DYNAMICS AND CONTROL IN PHYSIOLOGICAL SYSTEMS. In conjunction with Biomedical Engineering. PROFESSORS FIRTH AND OUTERBRIDGE

The following courses are offered in conjunction with the Department of Experimental Medicine:

552-606A. ADVANCED APPLIED CARDIOVASCULAR PHYSIOLOGY. PROFESSORS FALLEN AND GOLDSMITH

552-607D. ADVANCED APPLIED RESPIRATORY PHYSIOLOGY. PROFESSORS ANTHONISEN AND BURGESS

552-608A. ADVANCED RENAL AND ELECTROLYTE PHYSIOLOGY. PROFESSORS DIRKS, LEVY AND SEELY

552-609B. MEMBRANES: BIOPHYSICS' PHYSIOLOGY AND CLINICAL APPLICATION. PROFESSOR BLOSTEIN

552-610B. BIOPHYSICS. (Not offered in 1973-74.)

552-612B. PHYSICAL METHODS IN BIOLOGICAL RESEARCH. STAFF

552-613A. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART I. PROFESSORS GOLD AND LAPP

552-614B. PHYSIOLOGY OF THE IMMUNE RESPONSE. PART II. PROFESSORS GOLD, GUTTMAN AND LAPP

552-615B. PHYSIOLOGY OF BLOOD. PROFESSOR COOPER

D14 DEPARTMENT OF PSYCHIATRY

D14.1 STAFF

Professors — H. E. LEHMANN *(Chairman)*; M. K. BIRMINGHAM; H. CAPLAN; M. DONGIER; H. KRAVITZ; A. W. MacLEOD; R. B. MALMO; A. M. MANN; H. B. M. MURPHY; T. L. SOURKES

Professor (Associate Member) — L. J. POIRIER

Professors Emeritus — R. A. CLEGHORN; E. D. WITTKOWER

Associate Professors — J. AUFREITER; F. AZIMA; T. A. BAN; B. M. CORMIER; J. A. CORSON; I. S. DISHER; P. G. EDGELL; B. A. GIBBARD; B. GRAD; L. GRATTON; L. G. HISEY; V. A. KRAL; E. P. LESTER; J. G. LOHRENZ; F. W. LUNDELL; D. J. McCLURE; J. NAIMAN; E. G. POSER; R. H. PRINCE; A. E. SCHWARTZMAN; J. J. SIGAL; J. R. UNWIN; H. WARNES; G. WEISS

Assistant Professors — K. S. ADAM; N. R. ALDOUS; M. M. AMIN; J. V. ANANTHARAMAIAH; C. C. J. ANGLIKER; G. AUFREITER; H. A. AZIM; S. BARZA; J. BEAUBIEN; P. R. BECK; C. BOS; C. CAHILL; C. H. CAHN; J. CUMBERLAND; H. DAVANLOO; S. DONGIER-MONTAGNAC; B. DUBROVSKY; S. Z. DUDEK; W. D. ENGELS; F. ENGELSMANN; R. B. FELDMAN; H. GRAUER; B. R. HUNT; A. P. N. LEE; J. W. LELLA; R. E. LEMON; D. C. LEVIN; E. D. LEVINSON;

J. G. MAGUIRE; K. K. MINDE; G. F. MORGENSTERN; H. F. MULLER; J. C. NEGRETE; Y. NERMAN; G. PETERFY; D. PIVNICKI; M. S. RABINOVITCH; R. A. RAMSAY; D. SILVER; C. C. SMITH; L. SOLYOM; S. STEIN; G. C. TAYLOR; G. TURCOT; L. VACAFLOR; S. WILNER; N. WISEBORD; C. YUNG

Lecturers — E. H. ACHONG; R. ARBITMAN; H. AST; A. BARTOVA; C. BENIERAKIS; S. BIKADOROFF; S. CAMPBELL; A. J. CARRE; C. COHEN; E. G. DEBBANE; H. A. EVANS; F. FENTON; H. GUTTMANN; G. P. HARNOIS; P. KACHANOFF; T. KOLIVAKIS; I. KRAULIS; F. E. KRISTOF; S. LAL; G. LAROCHELLE; J. LEVY; H. P. MALMO; A. F. MESZAROS; A. K. MULLER; N. P. NAIR; E. NALTCHAYAN; C. NOVELLA; J. M. PAIEMENT; E. J. PINTER; P. D. L. ROPER; I. REBNER; E. ROSKIES; J. RUIZ-NAVARRO; P. D. SCULLY; S. P. SIMONS; R. M. SMITH; L. G. STERN; A. A. SURKIS; D. J. WOOD

D14.2 REQUIREMENTS FOR THE M.Sc. DEGREE

Admission is restricted to candidates who hold an M.D. degree with good standing from an approved institution, and who have had not less than three years postgraduate training in Psychiatry in an approved centre.

The degree usually requires two years, but, under special circumstances, may be accomplished in one, spent wholly in research. The thesis topic and research subject must be approved beforehand by a committee headed by the Chairman of the Department of Psychiatry, and by the Dean of the Faculty of Graduate Studies and Research. The problem studied may belong to a clinical field, but a rigorous investigative approach must be utilized.

Adequate library and laboratory facilities are available in the Department of Psychiatry and are located in the Allan Memorial Institute of the Royal Victoria Hospital.

COGNATE SUBJECTS

Each student will be required to take certain courses in cognate subjects, such as Biochemistry, Endocrinology, Neurophysiology, Psychology or Sociology. These will be determined upon the basis of the special field of Psychiatry in which the candidate's research work is being carried out.

D14.3 GRADUATE PROGRAM IN TRANSCULTURAL PSYCHIATRY

1. The purposes of this program are:
   (a) to train researchers from psychiatry, anthropology and related disciplines for work in the borderland between cultural anthropology and international psychiatry;
   (b) to orient mental health practitioners and administrators from underdeveloped countries towards the need to consider the cultural backgrounds of their peoples; and to assist them in doing so.
2. The needs of trainees in this field being so varied, and also so influenced by their own backgrounds, the main emphasis in this program is on individual tuition and on the selection of courses in different departments to strengthen areas of knowledge and experience relevant to the individual's needs. Field experience under supervision is arranged as necessary, and two core courses are provided.
3. The M.Sc. in Psychiatry will be granted to suitably trained medical graduates upon the completion of an approved thesis.
4. For non-medical graduates the program can usually be taken in *part* fulfilment of the requirements for a Ph.D. or other higher degree, subject to the normal regulations of the departments concerned.

D14.4 COURSES

555-711C. CULTURE, PERSONALITY AND PSYCHOPATHOLOGY. (20 hours.)
PROFESSOR MURPHY AND STAFF

555-712C. CROSS-CULTURAL COMPARISONS OF MENTAL ILLNESS. (20 hours.)
PROFESSOR MURPHY AND STAFF

D15 DEPARTMENT OF DIAGNOSTIC RADIOLOGY

Application for admission as candidates for the M.Sc. degree will be considered from graduates in medicine, veterinary medicine, dentistry or relevant areas of the biological or physical sciences or electrical engineering. The normal admission standards of the Faculty will apply. Two years may be required to complete qualification for the degree in order to include adequate knowledge of the fundamental sciences. Further information may be obtained from the Chairman of the Department.

D16 DEPARTMENT OF SURGERY (DIVISION OF SURGICAL RESEARCH)

D16.1 STAFF 73/74

Professors — L. D. MacLEAN *(Chairman);* D. R. MURPHY; A. THOMPSON

Associate Professors — DEIDRE M. EDWARD *(on leave);* J. GORDON; E. J. HINCHEY; S. C. SKORYNA

Assistant Professors — J. H. DUFF; H. S. HIMAL; A. H. McARDLE; D. Y. E. PEREY; S. PITZELE

Lecturers — ANNA DANIEL; C. A. LAURIN; J. RIVILIS; N. M. SCHEINER; Y. TANAKA

Research Laboratories	*Directors*
Donner Building	H. S. HIMAL
Montreal General Hospital	E. J. HINCHEY
Royal Victoria Hospital	H. SHIZGAL
Montreal Children's Hospital	D. Y. E. PEREY

D16.2 REQUIREMENTS

The Department offers courses leading to the M.Sc. degree in the Faculty of Graduate Studies and Research and provides facilities for graduate research in surgery. Arrangements may be made for students wishing to proceed to a Ph.D. degree.

A candidate for a postgraduate degree in Surgery must have an M.D. degree or its equivalent together with a better than average academic record. A candidate who does not have the M.D. degree may be accepted by the Graduate Studies Medical Committee under certain circumstances. His previous interest and experience in investigative work is taken into consideration in the selection of such a candidate. The major part of the student's time will be devoted to research in some special field of investigative work.

A thesis covering this subject, judged chiefly upon its original cuality, will be the prime requisite for his degree.

In addition the student will be required to attend certain courses of graduate instruction in the basic sciences. These courses are being given in cooperation with the Departments of Anatomy, Statistics, Physiology and Pathology and the staff of the Teaching Hospitals of the University. Candidates are required to take comprehensive examinations in Experimental Surgery and Surgical Anatomy or other courses approved as cognate subjects.

For the purpose of assisting the student's research, conferences are held frequently within the Department and a Surgical Journal Club is conducted weekly. The main research interests of the Department are at present: transplantation experimental carcinogenesis, cardiovascular surgery, gastroenterology, shock, water and electrolyte metabolism, and the effects of thermal injury. In addition, several research projects are conducted in surgical specialities and consideration will be given the particular interests of the candidate in the selection of the field of research.

D16.3 COURSES FOR HIGHER DEGREES

519-602D. SURGICAL ANATOMY. 1 hour weekly and demonstrations in anatomy laboratory to undergraduate medical students or an equivalent course in another basic science department.

519-603D. SEMINAR. (1 hour.) Physiopathological principles in surgery.

519-604D. SURGICAL SEMINAR.

513-607A. MEDICAL STATISTICS. (20 hours, first term.) See section D5 Department of Epidemiology and Health.

D16.3.1 SCHEDULED GRADUATE SEMINARS

The Royal Victoria Hospital (1 hour per week)

CARDIOVASCULAR-THORACIC CONFERENCE.
ACCIDENT SURGERY SEMINAR.
GENERAL SURGERY SEMINAR.
NEOPLASTIC SEMINAR.
COMBINED MEDICAL-SURGICAL GASTROINTESTINAL CONFERENCE.
SURGICAL LITERATURE SEMINAR (RECENT ADVANCES).
TRANSPLANTATION CONFERENCE.
ORTHOPAEDIC CONFERENCE.
PLASTIC SURGERY SEMINAR.
SURGICAL GRAND ROUNDS.

The Montreal General Hospital
(1 hour per week, or in some cases alternate week)

RESEARCH SEMINARS, UNIVERSITY SURGICAL CLINIC.
GASTROENTEROLOGY CONFERENCE.†
OPHTHALMOLOGY CONFERENCE.
CARDIOVASCULAR-THORACIC CONFERENCE.
GENITO-URINARY CONFERENCE.
NEUROSURGERY CONFERENCE.
TUMOUR BOARD CONFERENCE.
COMBINED MEDICAL-SURGICAL CONFERENCE.†
TRAUMA CONFERENCE.
PLASTIC SURGERY CONFERENCE.
COMBINED SURGICAL CONFERENCE.†
ORTHOPAEDIC CONFERENCE.
CARDIAC CONFERENCE.†
GENERAL SURGERY SEMINARS.

†In conjunction with Experimental Medicine.

D16.4 GASTROINTESTINAL RESEARCH LABORATORY

Associate Professors — S. C. SKORYNA *(Director)*; D. WALDRON-EDWARD

Assistant Professor — Y. TANAKA

Research Associates and Consultants — B. B. BIBLE *(Nutrition)*; M. A. FRANKLIN *(Microbiology)*; R. G. FRASER *(Radiology)*; W. F. GRANT *(Cytogenetics)*; C. C. HARRIS *(Haematology)*; K. C. HONG *(Marine Biochemistry)*; D. S. KAHN *(Pathology)*; P. V. KINGSTON *(Clinical Investigation)*; F. D. LIDDELL *(Epidemiology and Statistics)*; E. ROSENTHALL *(Mathematics)*; E. M. SCHEITHAUER *(Zoology)*; M. A. VISWANATHAN *(Plant Physiology)*

Research Assistants — L. G. ANGELOFF; A. HURLBURT; P. L. ROJOWSKI

The Institute was established in 1959 to provide an interdisciplinary research facility and graduate education in enterology. The research program correlates different fields, such as botany, zoology, bacteriology, physics, chemistry and clinical investigation, in problems concerning the alimentary canal and nutrition. The policy of the Institute since its inception is to encourage interdepartmental activity, as well as integrate interdisciplinary research in relation to the digestive system.

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "E" PHYSICAL SCIENCES AND ENGINEERING

1973-74

NOTE: Courses marked with an asterisk (*) are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Fall and Spring term course

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

Legal Deposit II 73.

E1 SCHOOL OF ARCHITECTURE

E1.1 STAFF

Professors — JOHN BLAND; PETER COLLINS; STUART WILSON
Associate Professors — BRUCE ANDERSON; DEREK DRUMMOND *(Associate Director)*; DAVID FARLEY; NORBERT SCHOENAUER *(Director)*; JOHN SCHREIBER; RADOSLAV ZUK
Assistant Professors — JOSEPH BAKER; BRIAN McCLOSKEY
Research Associate — ALVARO ORTEGA

E1.2 REQUIREMENTS FOR THE M.Arch. DEGREE

The degree of Master of Architecture is offered in the fields of Architectural Design and Housing. Students holding the McGill B.Arch. degree with at least second class standing or having equivalent qualification are eligible to proceed to the M.Arch. degree with a minimum of one resident session plus the time required to complete the thesis.

Students holding the bachelor's degree or equivalent in Anthropology, Architecture, Economics, Civil Engineering, Geography, Law, Management, Political Science, Social Work or Sociology, may take the course in Urban Planning, provided they are eligible to proceed to the master's degree in the discipline to which they belong. The degree offered is the Master of Urban Planning.

N.B. Information concerning documents required of applicants for the M.Arch. degree may be obtained from the Secretary of the School of Architecture. The application deadline is March 15.

E1.3 COURSES

E1.3.1 ARCHITECTURAL DESIGN

Students in Architectural Design are required to take the courses listed below as well as three other related courses. In addition they are required to submit a thesis approved by the Director of the School.

301-610D. ARCHITECTURAL DESIGN. (2 hours tutorial and studio work.) PROFESSORS BLAND, ZUK AND STAFF
301-620D. GRADUATE SEMINAR. (2 hours). STAFF AND VISITORS

E1.3.2 HOUSING

Students in Housing are required to take *either* course 301-611D Urban Housing *or* course 301-612D Minimum Cost Housing, as well as the other courses listed below. In addition they are required to take one other related course and to submit a thesis approved by the Director of the School.

301-205A. HISTORY OF HOUSING. (2 hours lectures). PROFESSOR SCHOENAUER
301-433A, 301-434B. URBAN PLANNING 1, 2. (2 hours lectures). PROFESSOR FARLEY
301-611D. URBAN HOUSING. (2 hours tutorial and studio work.) PROFESSOR SCHOENAUER
301-612D. MINIMUM COST HOUSING. (2 hours tutorial and studio work.) MR. ORTEGA
301-620D. GRADUATE SEMINAR. (2 hours). STAFF AND VISITORS
301-621B. HOUSING THEORY (2 hours lectures). PROFESSOR SCHOENAUER

E1.3.3 URBAN PLANNING

A minimum of two years study including a supervised research project is required. A detailed description of the program may be obtained from the Secretary of the Urban Planning program.

301-433A, 301-434B. URBAN PLANNING 1, 2. (2 hours lectures). PROFESSOR FARLEY
301-620D. GRADUATE SEMINAR. (2 hours). STAFF AND VISITORS
301-650D. PLANNING PROJECTS. (2 hours tutorial and studio work) PROFESSOR FARLEY
Other courses as prescribed.

E 2 BIOMEDICAL ENGINEERING UNIT

The academic program of the Unit is designed to enable qualified graduate students to pursue interdisciplinary studies in Engineering and Medicine. This program has been structured mainly for engineers, but applicants from the biological and medical sciences are welcome. The teaching and research program leads to the Master's and Doctoral degrees. At present students will be registered in the Faculty of Graduate Studies and Research through their respectively relevant departments. Limited financial assistance for students may be available through the Unit, as well as through the University. For further information, apply to the Director, BioMedical Engineering Unit, McIntyre Medical Sciences Building.

Course work will be prescribed on an individual basis. In general, however, a minimum of six courses will be required as well as a thesis for the Master's degree.

The research interests of the Unit can be classified into two main categories: (i) experimental and theoretical studies of basic scientific nature, and (ii) application and development of technology for health care delivery. Our basic research work encompasses: neuromuscular control system studies, in particular locomotion and posture, vestibular and visual control; optimization studies of eye movements and of the cardiovascular system; sensory and neural communication theory; modelling of the auditory system; and amino acid transport across cell membrane. Apart from in the Unit, research may be done especially in the Otoloryngological Research Labs, Department of Biophysics and Biomedical Engineering (Montreal Children's Hospital), or in any other labs primarily concerned with the particular projects.

In the area of research and development for health and medical services, our activities are: computer applications and instrumentation for audiology, cardiology, electronystagmography, visual testing and the processing of biological signals; analysis of the system aspects of hospitals, health care centres and their subunits; investigation and design of information systems for pathology, clinical laboratories and other hospital functions.

E2.1 STAFF

Assistant Professors — C. A. LASZLO *(Acting Director)*; H. C. LEE; D. H. MOSCOVITCH; J. L. NEAL; J. S. OUTERBRIDGE

Research and Teaching Associates — D. R. FIRTH *(Physiology)*; C. GORESKY *(Experimental Medicine)*; V. KLISSOURAS *(Physical Education)*; M. D. LEVINE *(Electrical Engineering)*; P. MACKLEM *(Experimental Medicine)*; O. A. MAMER *(Experimental Medicine)*; G. MANDL *(Aviation Medical Research Unit)*; G. MELVILL JONES *(Aviation Medical Research Unit)*; L. D. MacLEAN *(Experimental Surgery)*; J. MILLER *(Orthopaedic Surgery)*; G. MORGENSTERN *(Psychiatry)*; M. REESAL *(Pathology)*; A. ROTENBERG *(Joint Hospital Computer Services)*

E2.2 COURSES FOR HIGHER DEGREES

Note that all courses are not necessarily given every year. Prospective students are advised to inquire in September for details (Local 4328).

399-611B. BIOLOGICAL CONTROL SYSTEM THEORY. (3 lectures, second term.) Control system structure and information flow: homeostasis and neuromuscular systems; neuromuscular control, locomotion, oculomotor system, respiration, the human operator, thermo-regulation, cardiovascular control, endocrine control systems; adaptive and optimizing control structure and theory, performance criteria; growth, positive feedback and mutual causality.

399-613B. SENSORY COMMUNICATION THEORY. (3 lectures, second term.) Sensory receptors and neural coding; signal transmission and aspects of information processing in the vestibular, auditory, and visual systems; neural modelling; methods of pulse frequency modulation and analysis of multi-unit multipath neural communication; information processing in theoretical neural networks. Student projects.
PROFESSOR LEE

399-621B. ENGINEERING BIOPHYSICS. A. (3 lectures, first term.) Biochemical thermodynamics; criterion for equilibrium; phase equilibrium; chemical reaction equilibrium; the equilibrium constant, electro-chemical cell potentials, ATP degradation; chemical kinetics; fluid flow; mass transfer; biological role of water; bio-macromolecules; proteins, nucleic acics, polysaccharides, polyelectrolytes; biological effects of ionizing radiation; buffers, osnotic pressure, acid-base balance.
PROFESSOR NEAL

399-622A. ENGINEERING BIOPHYSICS. B. (3 lectures, second term.) Membranes; structure, electrical properties, passive transport, active transport; models of membrane; nerve conduction. Biological control at molecular level. Microscopy. X-ray diffraction. Radioactivity. Biophysical instrumentation and measurements.

399-623B. PRINCIPLES OF MEDICAL SCIENCE. (2 lectures, second term; *Prerequsite:* Physiology 552-211D or equivalent.) This course is designed to acquaint engineers with the principles and techniques of clinical practice and research, emphasizing those areas where bioengineering may contribute. Sessions are held in the McGill-associated hospitals, each led by a medical specialist. Specialized areas studied include: diagnosis; iron metabolism; ECG's, pacemakers and intensive-care cardiac units; respiratory function, disease and xenon measurements; artificial dialysis; general and orthopaedic surgery.
STAFF

399-631B. BIOMEDICAL ENGINEERING TECHNIQUES AND INSTRUMENTATION. (3 lectures, second term.) The purpose of this course is to introduce graduate students to selected topics in the area of application of technology, systems theory and computer science to problems in health care delivery. The level of presentation will assume adequate mathematical and technological background, including differential equations, transform techniques, basic instrumentation and computer programming. The material presented in this course changes every year allowing in-depth exploration of different areas of biomedical engineering activity. Students are asked to inquire about this course in the first term and to participate actively in a discussion on possible topics at the end of November. Major areas of interest are: methods of bio-signal analysis, computer evaluation of ECG, industrial engineering methods in hospitals, computer applications in clinical laboratories and intensive care units, health information systems. Structured student projects are part of this course.
PROFESSOR LASZLO AND STAFF

399-641A. SYSTEM CONCEPTS AND COMPUTER APPLICATIONS FOR BIOLOGY AND MEDICINE. (2 lectures, 2 laboratories, first term.) Basic concepts and methods necessary for the application of computer and system techniques in physiology and medicine. The course is designed to enable the life scientist to utilize recent practical and theoretical advances in engineering and data analysis. In the laboratories participants will be given the opportunity to use various computers and work on particular problems of their choice.
PROFESSOR LASZLO

E 3 DEPARTMENT OF CHEMICAL ENGINEERING

E3.1 STAFF

Professors — G. A. RATCLIFF *(Chairman);* W. J. M. DOUGLAS

Associate Professors — J. BRUNET; R. CLIFT; J. M. DEALY; E. J. FARKAS; O. M. FULLER; J. R. GRACE; S. B. LANG; M. R. KAMAL; M. E. WEBER

Assistant Professor — J.-M. CHARRIER

Special Lecturers — R. T. CLARE; N. E. COOKE; J. D. B. OGILVIE

Senior Research Associate — W. H. GAUVIN

Associate Members — H. L. GOLDSMITH *(Experimental Medicine);* J. L. NEAL *(Paediatrics)*

E3.2 DEGREE REQUIREMENTS

Advanced courses and laboratory facilities are available for graduate study leading to the M.Eng. and Ph.D. degrees in Chemical Engineering. Before making formal application for admission to the Dean, applicants should write to the Chairman of the Department, from whom additional information on Departmental research and on financial support is available.

E3.2.1 REQUIREMENTS FOR THE M.Eng. DEGREE

A student may satisfy the requirements for the degree by completing one of the following options:

a) 45 credits including a maximum of 24 credits in courses of which at least 15 credits are graduate chemical engineering courses. The balance of the requirements should be devoted to a research project leading to the submission of a thesis.

b) 45 credits including at least 24 credits of graduate chemical engineering courses and at least three approved courses outside the Department of Chemical Engineering selected in one area to constitute a "minor". The student is required to take 5 to 9 credits towards completing a chemical engineering design or research project leading to a project report.

At least one full session (or two half sessions) of resident study at McGill University is required for this degree. This is a minimum requirement, and it will usually require more than this period to complete the work for the degree.

E3.2.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates with a bachelor's degree in chemical engineering normally register for the M.Eng. degree in the first instance.

Candidates with an acceptable master's degree or equivalent from another university will normally proceed directly to the Ph.D. degree. The course work undertaken by a Ph.D. candidate will be decided in the light of his academic qualifications, the requirements of his research, and his own interests.

Minimum time requirement is two years beyond the M.Eng. degree (or equivalent elsewhere).

E3.2.3 GENERAL

There are no language requirements for either degree. All students must demonstrate a proficiency in digital computer programming and give a research colloquium.

E3.3 RESEARCH

Research may be undertaken in any branch of Chemical Engineering or in related fields. Current projects are in the following areas: fluid and particle dynamics, mass transfer, heat transfer and cryogenics, diffusion, combustion, ion exchange, chemical reactor design, coupled transport processes, air and water pollution control, thermodynamics, mixing, solid-liquid separation, catalysis, rheology, biological processes, gas-liquid contacting, reactions in electric discharge, polymer processing and mechanical properties.

The Department has two professionally-staffed workshops, one specializing in mechanical construction, the other in electronics. In addition, a student shop and a darkroom are available. Among the special purpose laboratories are two constant-temperature rooms.

Specialized equipment in the department includes: a laser doppler anemometer system, a Mach-Zender interferometer and He-Ne laser, d.c. arc and r.f. induction plasma generators and reactors, transient response equipment, a horizontal and a vertical wind tunnel, turbulence analysis equipment, ultrasonic vibration generators, high speed analog to digital convertor, instrumentation grade tape recorder, thermal

diffusivity apparatus, differential scanning calorimeter, thermogravimetric analyser, capillary rheometer, large amplitude rheometer, cone-and-plate viscometer, Instron mechanical test apparatus, vibrating capacitor electrometer, Couette dispersion apparatus, mechanical spectrometer, injection molding machine, extruder, high speed photography facilities, particle counter, continuous dilution calorimeter and total pressure apparatus for thermodynamic measurements. The Department has a complete range of analytical equipment including UV, IR and atomic absorption spectrometers, beta and gamma scintillation spectrometers, and a variety of gas chromatography apparatus.

Access to an IBM 360/75 digital computer is provided either through conventional batch processing or through a time-sharing terminal located in the Department. A General Electric GEPAC 4020 Computer, installed in the Engineering Building, is used for data logging of experiments and processing of logged data. The computer can accept analogy signals (DC volts, frequency, time interval and resistance) from many experiments simultaneously. The Department has approximately 100 input channels to the GEPAC in its laboratories. In addition, the Department has an EAI TR-20 analog computer and a programmable electronic calculator.

E3.4 COURSES FOR HIGHER DEGREES

Courses are given if registration is sufficient. Symbols preceding course numbers have the following significance:

†Courses given every year if sufficient registration.

††Courses given every second year if sufficient registration.

†††Courses given when there is sufficient student interest and registration.

†††302-691D. SELECTED TOPICS IN CHEMICAL ENGINEERING. (1 or 2 hours, 1 term. May be given twice a year.)

†302-611A. HEAT, MASS AND MOMENTUM TRANSPORT. (3 hours, 1 term.) Unified treatment of the transport of mass, momentum and energy. PROFESSOR LANG

††302-712B. HEAT TRANSFER. (2 hours, 1 term.) Advanced treatment of heat transfer in convection, boiling and in particulate systems. Application of numerical methods and correlation of data. PROFESSOR WEBER

††302-713B. MASS TRANSFER. (2 hours, 1 term.) Study of diffusive and convective mass transfer across interfaces. Turbulent transport and the transport of ions. Film and penetration theories and methods of predicting mass transfer rates for bubbles, drops, and plane surfaces. PROFESSOR WEBER

†302-621B. THERMODYNAMICS. (3 hours, 1 term.) Review of thermodynamic principles. The foundations of thermodynamics with application of its methodology in the field of multicomponent, multiphase, multireaction ideal and non-ideal systems. A detailed study of equilibrium and stability of thermodynamic systems with emphasis on the construction of phase diagrams. PROFESSOR BRUNET

†302-631A. FOUNDATIONS OF FLUID MECHANICS. (2 hours, 1 term.) Review of basic concepts and equations; flow of inviscid fluids including conformal mapping, axisymmetric flows, and free streamline theories; creeping flows; Stoke's solution and the Oseen linearization for flow past spheres; empirical and statistical approaches to the study of turbulence; boundary layer theory; drag on solid bodies; introduction to rheology, multiphase flows, and the study of instabilities. PROFESSOR GRACE

†††302-732B. RHEOLOGY OF LIQUIDS. (1 hour, 1 term.) Rational mechanics, formulation of rheological models, purely viscous fluids, linear and nonlinear viscoelasticity, viscometric flows, extensional flows, experimental methods; laboratory demonstrations. PROFESSOR DEALY

†††302-733B. MIXING. (2 hours, 1 term.) Basic definitions and concepts; molecular, eddy, and bulk diffusion; solids mixing; macromixing and micromixing and their influence on conversion and selectivity in chemical reactors; reactor models; mixing of viscous liquids; turbulent mixing in stirred tanks. PROFESSOR GRACE

†302-641B. CHEMICAL REACTION ENGINEERING. (2 hours, 1 term.) Interpretation of chemical reaction data, especially for heterogeneous systems. Residence time, complete segregation, maximum mixedness, other advanced concepts. Reactor design. PROFESSOR FARKAS

†††302-742A. INTRODUCTION TO CATALYTIC PROCESSES. (2 hours, 1 term.) Physical structures of solid catalysts, effects of structure on selectivity and activity, catalyst life and regeneration, standard methods of catalyst preparation, special preparation methods, properties of catalysts for homogeneous reactions, examples of solid catalysts in the chemical industry.
PROFESSOR FULLER

††302-751B. FLUIDIZATION. (2 hours, 1 term.) Incipient fluidization. Equations of Continuity and Motion. Regimes of fluidization. Liquid-fluidized beds. Bubble phenomena. Mixing. Heat and mass transfer. Elutriation. Chemical reactor models. Design and scale-up problems. Applications.
PROFESSOR GRACE

†302-661A. MATHEMATICAL METHODS IN CHEMICAL ENGINEERING. (3 hours, 1 term.) Calculus of variations, Pontryagin's maximum principle, approximate solution to differential equations (direct variational methods), discrete maximum principle, selected applications in optimization, transport phenomena, and irreversible thermodynamics. PROFESSOR BRUNET

†302-662B. COMPUTATIONAL METHODS. (2 hours, 1 term.) Selected topics of value in chemical engineering, including integration and solution of sets of differential equations, curve fitting, and optimum-seeking methods.
STAFF

††302-771A. PROCESS DYNAMICS AND CONTROL. (2 hours, 1 term.) Mathematical modelling of industrial processes. Dynamic characteristics of models and real processes. Modal analysis and control of processes.
PROFESSOR FULLER

†302-681B. POLYMER CHEMICAL ENGINEERING. (3 hours, 1 term.) The application of chemical engineering fundamentals to the preparation and processing of polymers. Classification and characterization of polymers, reaction media and kinetics of polymerization, reactor design, viscoelasticity and rheology, processing techniques, extrusion, molding, composite formation, adhesion, etc.
PROFESSOR KAMAL

†302-682A. MECHANICAL BEHAVIOUR OF PLASTICS AND COMPOSITES. (3 hours, 1 term.) Mechanical behaviour of non-reinforced systems; the theory of small and large deformations; crystalline polymers; hot- and cold-drawn fibres; cross-linked thermoplastics, thermosets, and elastomers; copolymers; polymer blends. Mechanical behaviour of reinforced systems: fillers in elastomers and thermosets; particle, short-fibre and continuous filament reinforcement: Morphology-properties relationships. Experimental techniques.
PROFESSOR CHARRIER

†302-783A. SPECIAL TOPICS IN POLYMER ENGINEERING. (3 hours, 1 term.) Seminars and discussions on selected advanced problems of polymer engineering.
PROFESSORS KAMAL, CHARRIER AND DEALY

E4 DEPARTMENT OF CHEMISTRY

E4.1 STAFF

Professors — L. E. ST. PIERRE *(Chairman)*; B. BELLEAU; G. C. B. CAVE; J. T. EDWARD; G. E. JUST; S. G. MASON; M. ONYSZCHUK; D. PATTERSON; A. S. PERLIN; A. TAURINS; C. A. WINKLER; L. YAFFE

Associate Professors — I. S. BUTLER; T. H. CHAN; A. EISENBERG; B. C. EU; P. G. FARRELL; J. M. FRESCO; D.F.R. GILSON; A. E. GROSSER; D. N. HARPP; J. F. HARROD; R. F. ROBERTSON; M. A. WHITEHEAD

Assistant Professors — W. C. GALLEY; J. J. HOGAN; D. J. SIMKIN

Senior Research Associate — D. A. I. GORING

Research Associates — H. BOLKER; R. ST. JOHN MANLEY; A. A. ROBERTSON

Associate Members — H. L. GOLDSMITH *(Medicine)*; G. B. SAHA *(Nuclear Medicine)*

E4.2 REQUIREMENTS

E4.2.1 ADMISSION

The minimum academic standard for admission is normally a high second class standing. Applicants from other institutions should have an academic background

equivalent to that of a McGill graduate in honours chemistry or major in chemistry. If possible a candidate should specify the field of research in which he is interested.

All inquiries concerning graduate work in the Department of Chemistry should be addressed to the Chairman of the Admissions Committee, Department of Chemistry.

E4.2.2 REQUIREMENTS FOR THE M.Sc. AND Ph.D. DEGREES

1. Students must take such examinations as may be required in (a) assigned courses given in the Department of Chemistry, (b) assigned cognate courses given in other departments, (c) assigned foreign languages.

Courses are assigned after taking into consideration the student's previous training and the field of his research interest.

2. Students must complete successfully a research project and submit an acceptable thesis thereon.

3. Students must satisfy the examiners in an oral examination on the thesis and related subjects (required only of candidates for the Ph.D. degree).

4. All the usual requirements of the Faculty of Graduate Studies and Research must be satisfied.

E4.3 FINANCIAL ASSISTANCE

It is usually possible to provide financial assistance during the four summer months. Financial assistance during the academic session is generally available in the form of demonstratorships or scholarships and occasionally by payment from research funds.

Graduate student demonstrators are required to devote between six and eight hours per week during the academic session to instruction in undergraduate laboratories.

E4.4 EXAMINATIONS IN CHEMISTRY

1. Examinations are normally taken by the candidates in January and May. In special circumstances, and with the permission of the Department, they may be taken in September.

2. A candidate for the Ph.D. degree shall pass all examinations, other than those in certain special courses, before the final year, except in special circumstances and then only with the approval of the Department.

E4.5 RESEARCH IN CHEMISTRY

Members of the Department of Chemistry are active in directing research in the following fields:

ANALYTICAL

Molecular complexes; solvation and polymerization in non-aqueous solutions; complex ions; metal ion separations; hydration and solvation in solvent extraction; kinetic processes in analytical chemistry, specific ion electrodes.

BIO-ORGANIC

Enzyme chemistry; protein structure and function; active site stereochemistry; molecular basis of regulation and pharmacological action.

BIOPHYSICAL

Excited electronic states of proteins and nucleic acids, spectroscopic probes of biopolymer conformation, sensitized photochemistry in biopolymers, dynamics of protein and nucleic acid conformation.

COLLOID AND POLYMER

Monomolecular layers; solution properties of high polymers; molecular morphology; electrokinetics; adsorption; rheology and stability of dispersions; phase transitions in polymers; polymer reinforcement; radiation effects and solid-state polymerization; mechanisms of polymerization reactions; wetting and spreading; the glass transition; molecular dynamics and polymer properties; ionic polymers; cellulose and paper; carbohydrate biopolymers; pollution abatement; polymer melt rheology; synthetic latices; rheo- and electro-optical phenomena.

INORGANIC

Germanium and silicon chemistry; coordination of Group III and V halides; inorganic polymers; I.R., laser Raman, N.M.R., N.Q.R., and mass spectra of inorganic and organometallic complexes; inorganic reaction mechanisms; catalysis.

ORGANIC

Synthesis and structure of heterocyclic compounds; steroids; natural products; chemistry; carbohydrates; cellulose; lignin; carbonium ions; reactions in strong acids; photochemistry; plant-growth regulators; organic sulphur, phosphorus, and silicon chemistry; stereochemistry; ^{13}C NMR; reaction mechanisms; charge transfer complexes; new synthetic methods; conformational analysis.

PHYSICAL

Reactions of active nitrogen; reactions of hydrogen atoms; molecular beams; laser excited elementary reactions; matrix isolation of radicals; high resolution and "wide line" N.M.R.; Mössbauer Effect spectroscopy; nuclear quadrupole resonance; electronspin resonance; emission and absorption spectroscopy; addition agents in the electrodeposition of metals.

RADIOCHEMISTRY AND NUCLEAR CHEMISTRY

Elucidation of nuclear reactions using the McGill cyclotron and Chalk River nuclear reactors; fission and spallation reactions, decay scheme studies, characterisation of new radioactive species.

THEORETICAL

Ab initio and semi-empirical molecular orbital theory; d-orbitals; population analysis; self-consistent coulomb and overlap integral calculations; atom and molecule scattering theory; theory of transport processes; chemical kinetics in gases and liquids.

Adequate laboratory and library facilities are available for the courses listed below and for research. In addition, the Pulp and Paper Research Institute affords ample facilities for research on the structure and properties of carbohydrates, cellulose, lignin, wood, and pulp and paper.

E4.6 COURSES FOR HIGHER DEGREES

E4.6.1 ADVANCED UNDERGRADUATE COURSES

Any of the following courses may be required of a student who is admitted to the Graduate Faculty if the equivalent has not been taken previously.

180-352A, B.	STRUCTURAL ORGANIC CHEMISTRY. (3 lectures)	*Professors Chan, Just*
180-353A.	SURFACE CHEMISTRY. (1 lecture)	
180-356A.	INTRODUCTORY QUANTUM CHEMISTRY. (2 lectures)	*Professor Whitehead*
180-372A, B.	SYNTHETIC ORGANIC CHEMISTRY. (3 lectures)	*Professors Just, Chan*
180-373B.	MOLECULAR SPECTROSCOPY. (2 lectures)	*Professor Gilson*
180-381A.	CHEMISTRY OF THE TRANSITION ELEMENTS. (3 lectures)	*Professor Harrod*
180-383B.	INTRODUCTORY STATISTICAL MECHANICS. (1 lecture)	*Professor Eu*
180-387D.	ANALYTICAL CHEMISTRY. (1 lecture and 3 hours laboratory.)	*Professor Cave*

180-392B. INTEGRATED INORGANIC/ORGANIC LABORATORY. (9 hours) *Professors Chan and Harrod*

180-404B. PHYSICAL CHEMISTRY OF BIOPOLYMERS. *Professors Galley, Belleau and Perlin*

180-452B. PHYSICAL ORGANIC CHEMISTRY. *Professor Farrell*

180-455A. INTRODUCTORY POLYMER CHEMISTRY. *Professor St. Pierre*

180-456A. ADVANCED QUANTUM CHEMISTRY. *Professor Whitehead*

180-457B. INSTRUMENTAL METHODS OF ANALYSIS. *Professor Cave*

180-458A. RADIOCHEMISTRY. *Professor Yaffe*

180-459D. CHEMISTRY AND TECHNOLOGY OF HIGH POLYMERS.

180-463A, B. ADVANCED PHYSICAL CHEMISTRY LABORATORY. *Professor Winkler*

180-475A. CHEMICAL KINETICS. *Professor Grosser*

180-477A. ELECTROANALYTICAL CHEMISTRY. *Professors Cave and Fresco*

180-481A, B. MODERN TOPICS IN INORGANIC CHEMISTRY. *Professor Onyszchuk and Staff*

180-482A. ADVANCED ORGANIC CHEMISTRY. *Professor Just*

180-485B. SURFACE AND COLLOID CHEMISTRY. *Professor Mason*

180-486B. APPLICATIONS OF GROUP THEORY IN CHEMISTRY. *Professor Whitehead*

180-487A. SELECTED TOPICS IN MODERN ANALYTICAL CHEMISTRY. *Professors Cave and Fresco*

180-491B. ADVANCED INORGANIC CHEMISTRY LABORATORY. *Professor Butler*

180-493A. INTRODUCTION TO STATISTICAL THERMODYNAMICS. *Professor Eu*

180-496B. ADVANCED QUANTUM CHEMISTRY. *Professor Whitehead*

180-497B. ANALYTICAL SPECTROSCOPY. *Professors Cave and Fresco*

E4.6.2

GRADUATE COURSES

180-602D. NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. *Professor Gilson*

180-603D. INFRARED AND RAMAN SPECTROSCOPY. *Professor Butler*

180-621D. RECENT ADVANCES IN ORGANIC CHEMISTRY. *Professor Edward*

180-622D. HETEROCYCLIC COMPOUNDS. *Professor Taurins*

180-623D. STEREOCHEMISTRY. *Professors Edward and Perlin*

180-624D. SPECIAL TOPICS IN ORGANIC CHEMISTRY. *Staff*

180-625D. ORGANOMETALLIC CHEMISTRY. *Staff*

180-631D. SELECTED TOPICS IN ANALYTICAL CHEMISTRY. *Professors Cave and Fresco*

180-644D. SELECTED TOPICS IN CHEMICAL KINETICS. *Professors Grosser and Winkler*

180-645D. QUANTUM MECHANICS. *Professor Whitehead*

180-646D. STATISTICAL THERMODYNAMICS. *Professor Eu*

180-666D. SPECIAL TOPICS. Critical and original essays are required on various subjects of current interest in chemistry. *Staff*

180-671D. ORGANIC CHEMISTRY OF SYNTHETIC AND NATURAL POLYMERS. The structural organic chemistry and the elementary physical chemistry of macromolecules. *Dr. Bolker*

180-672D. THE POLYMER SOLID STATE. *Dr. Manley*

180-673D. POLYMERS IN SOLUTIONS. *Dr. Goring and Professor Patterson*

180-674D. INTRODUCTORY PHYSICAL CHEMISTRY OF POLYMERS. *Professor St. Pierre*

180-675D. MECHANICAL PROPERTIES AND RHEOLOGY OF POLYMERS. *Dr. Robertson and Professor Eisenberg*

180-681D. SELECTED TOPICS IN RADIOCHEMISTRY. *Professor Yaffe*

180-682D. NUCLEAR CHEMISTRY. *Professor Hogan*

180-720D. COLLOQUIUM. Each student is required to participate in Research Colloquia which are held regularly in the department. These involve the presentation and discussion of papers dealing either with the student's own research or with recent research publications.

E 5 DEPARTMENT OF CIVIL ENGINEERING AND APPLIED MECHANICS

Advanced courses of instruction and laboratory facilities are available for engineering graduate students desiring to proceed to the degrees of M.Eng. and Ph.D.

Graduate studies and research are at present being conducted in the fields of structures and structural mechanics, fluid mechanics and hydraulics, soil behaviour, soil mechanics and foundations, traffic and transportation engineering, sanitary and municipal engineering, and urban and environmental systems engineering.

E5.1 STAFF

Professors — J. L. de STEIN; J. O. McCUTCHEON *(part time)*; R. N. YONG

Associate Professors — R. G. REDWOOD *(Chairman)*; R. G. COX; P. J. HARRIS; R. D. JAPP; M. S. MIRZA; J. C. OSLER; A. PAKALNINS; S. B. SAVAGE; C. J. TURKSTRA

Assistant Professors — V. H. CHU; A. R. COOK; E. McKYES; D. PANAGIOTAKOPOULOS; D. A. SELBY

Visiting Assistant Professor — R. G. SISODIYA

Research Associate — D. Y. HSU

E5.2 REQUIREMENTS

E5.2.1 ADMISSION

The general rules of the Faculty apply and are detailed at the beginning of the calendar. The minimum academic standard for admission is normally a high second class standing.

E5.2.2 REQUIREMENTS FOR THE M.Eng. DEGREE

Candidates may satisfy the requirements for this degree by following one of two options: in Option A, 30 credits of course work are required, plus a research thesis; in Option B, a total of 45 credits are required, consisting of 36 to 40 credits of course work, plus a project. All courses have a weight of 4 credits, with the exception of 303-608A and 303-664A, which are weighted at 5 credits. It is usually required that a student take a course in mathematical methods appropriate to his interests, and other courses must be determined in consultation with the candidate's director of studies or research. In Option A a thesis describing the candidate's research is to be submitted in accordance with the rules of the Faculty of Graduate Studies and Research. At least one full session (or two half sessions) of resident study at McGill University is required for the degree. This is a minimum requirement, and usually a longer period will be necessary.

E5.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates normally register for the M.Eng. degree in the first instance. However, candidates who have a Master's degree acceptable to the Department may be considered for direct registration for the Ph.D. degree. The Ph.D. program consists of a research project and courses as required to develop the candidate's background. Candidates are expected to take a comprehensive preliminary oral examination within the first year of their Ph.D. registration. They must fulfil the requirements outlined in the general rules of the Faculty. There is no foreign language requirement.

E5.3 COURSES FOR HIGHER DEGREES

303-602B. FINITE ELEMENT ANALYSIS. *(Prerequisite:* 303-608A.) The finite element method and finite difference method. Emphasis will be on the analysis of two and three-dimensional solids. Non-linear problems. PROFESSOR REDWOOD

*303-603B. STRUCTURAL DYNAMICS. General theory of structural response to periodic and aperiodic forces. Spectrum methods. Numerical methods. Earthquake analysis. PROFESSOR TURKSTRA

*303-604A. THEORY OF PLATES AND SHELLS. Analysis of stress and deformation of plates bent by transverse loads. Plates on elastic supports. Energy and approximate methods of soultion. Anisotropic plates. Membrane theory of shells. General theory of cylindrical shells. Symmetrical bending of shells of revolution. Applications of theory to plate and shell structures. PROFESSOR HARRIS

303-605B. STABILITY OF STRUCTURES. Beams subject to axial and lateral loads. Columns with various end conditions. Buckling of frames. Buckling beyond the proportional limit. Columns of variable cross section. Latticed columns. Lateral buckling of beams. Buckling of plates and shells. PROFESSOR HARRIS

*303-606A. PLASTIC STRUCTURAL ANALYSIS. Basic theorems. Limit analysis and elastic-plastic deflections of frames. Frame instability and strain hardening effects. Non-proportional loading. Minimum weight design. PROFESSOR REDWOOD

*303-607B. DESIGN IN METALS. Physical properties of metals, residual stresses, design concepts. Column theories, column strength, beam-column design, structural frames. Plastic design concepts, ultimate strength, axial forces with bending, shear forces with bending. Economic design considerations. PROFESSOR deSTEIN

303-608A. INDETERMINATE STRUCTURES. Flexibility and stiffness methods using matrix formulation. Stiffness analysis of trusses and frames. Computer solution techniques. PROFESSOR SISODIYA

303-609A. STRUCTURAL SAFETY. Structural safety analysis and code formulation based on probabilistic models and decision concepts. Element reliability analysis-classical and approximate solutions. System reliability. Formulations suitable for implementation in codes. Applications in modern building codes. PROFESSOR TURKSTRA

303-610B. SPECIAL TOPICS IN STRUCTURAL MECHANICS. Special problems in the theory and design of structures. These may include topics in the theories of elasticity and plasticity and advanced theories of shell structures.

303-618A. DESIGN IN CONCRETE I. Concrete, physical properties, creep, shrinkage; review of ultimate strength design; combined loadings; design of frames and flat plates; limit design, yield line theory; prestressed concrete, partial prestressing and load balancing. The course will include group projects.

303-619B. DESIGN IN CRONCRETE II. Design topics will be selected from among the following: shear walls and deep beams, slender members, applications of probabilistic concepts to structural concrete design, analysis and design of folded plates, cylindrical shells, tanks, arches and bridges, special topics in prestressed concrete.

303-620B. STRUCTURAL MODELS. Structural model; direct and indirect models; demonstration models; theory, similitude and dimensional analysis; materials, fabrication, loading and instrumentation techniques; confidence levels; research projects to illustrate the use of qualitative and quantitative models to study structural behaviour. PROFESSOR MIRZA

303-621A. BEHAVIOUR OF CONCRETE STRUCTURES. Behaviour of reinforced and prestressed concrete members in flexure, shear, torsion and combined modes of loading. Forces at steel-concrete interface. Crack propagation and failure. PROFESSOR MIRZA

303-640A. TRANSPORTATION ENGINEERING. I. Technological characteristics of various modes of transport, integration of models into a transportation system. Theory of transportation networks, shortest route and minimum cost equilibrium models. PROFESSOR COOK

303-641B. TRANSPORTATION ENGINEERING. II. *(Prerequisite:* 303-640A.) Analysis of data to develop models to predict future traffic and design future networks. Techniques for evaluating alternative plans, feasibility analysis of transportation systems. PROFESSOR COOK

*303-650A. DISTRIBUTION AND COLLECTION SYSTEMS. Principles and practice of water transmission, distribution and storage design. Surface drainage and wastewater collection systems. Analysis, reinforcing and modification of existing systems. Economic aspects of systems and transmission. PROFESSOR PAKALNINS

303-651A. THEORY OF WATER TREATMENT. Physical, chemical and microbiological aspects of surface, ground and treated waters. Gravimetric, volumetric and instrumental analyses of

water samples. Principles of conventional and advanced water treatment methods for public water supplies. Water conditioning for industrial uses. Synthesis of treatment operations to produce water of a specific gravity. PROFESSOR PAKALNINS

*303-625B. THEORY OF WASTEWATER TREATMENT. Waste surveys, wastewater characteristics and laboratory analyses. Ecology, metabolism and population kinetics of micro-organisms, and their role in the various waste treatment processes. Conventional and advanced physical, chemical and biological processes of domestic and industrial waste treatment. PROFESSOR PAKALNINS

*303-653A. STREAM POLLUTION AND CONTROL. Physical and chemical pollution and bacterial contamination of surface and groundwaters. Environmental health aspects of pollution. Planning and practice of pollution surveys. Data analysis and reports. Analysis of stream water quality and waste discharge standards in North America and Europe. Correlation and control of the discharge conditions and the degree of water and wastewater treatment, domestic and industrial. PROFESSOR PAKALNINS

*303-654B. SANITARY ENGINEERING DESIGN. Complete problems in site selection, layout and design of water and wastewater treatment plants. Control and economic aspects of primary, secondary and tertiary plant operation. PROFESSOR PAKALNINS

*303-655A. WATER RESOURCES ENGINEERING. Legal, economic, conservational and technological aspects of the use of water resources. The concept of existing supplies and resource allocation. Planning factors and related problems of land use. Analysis of water quality management in North America and abroad. PROFESSOR PAKALNINS

303-656A. SYSTEMS ANALYSIS IN ENGINEERING. Introduction to systems analysis and mathematical optimization; structuring and solution of mathematical programming models with emphasis on linear and dynamic programming; sensitivity analysis and trade-off among design factors; application of systems analysis techniques to the solution of complex problems in the private and public sectors. PROFESSOR PANAGIOTAKOPOULOS

303-664A. MATHEMATICAL METHODS IN ENGINEERING RESEARCH. Vectors, tensors, and matrices and applications in engineering research; potential theory. Boundary value problems, integral transforms, asymptotic and similar solutions. Variational methods. PROFESSOR SAVAGE AND STAFF

*303-665B. APPLIED ELASTICITY AND TENSOR CALCULUS. Cartesian tensors, vectors and scalars; second order symmetric tensors, principal axes, eigenvectors and eigenvalues; the stress and strain tensors; homogeneous isotropic materials; plane stress and plane strain; stress functions in cartesian and polar coordinates; complex variable methods in two-dimensional elasticity; torsion of non-circular sections; strain energy methods; photoelasticity; finite difference methods; theories of elastic breakdown. PROFESSOR HARRIS

303-666B. URBAN AND ENVIRONMENTAL ENGINEERING SYSTEMS. *(Prerequisite:* 303-656A and probability theory.) Advanced topics in the application of mathematical programming techniques and probability theory to the solution of urban and environmental engineering problems. PROFESSOR PANAGIOTAKOPOULOS

303-667B. PLASTICITY. Criteria for yielding; Ideal behaviour, elastic-plastic, ideal plastic, rigid plastic; Non-ideal behaviour, work hardening, strain hardening; Physics of plastic behaviour, yield and failure; Principal stress space, ideal and non-ideal; Yield surfaces; Stability Postulates; Plastic Potential; St. Venant's Postulate; Plastic stress-strain relations, Levy-Mises, Prandtl-Reuss; Uniqueness; Limite theorems. PROFESSOR YONG

303-670B. WATER WAVES AND ALLIED MOTIONS. Motions of seas and rivers and their interaction with bottom and shore; deep and shallow water surface waves of all types, dispersion and non-linearity; conservation equations, wave interactions; internal waves; inertial waves. PROFESSOR SAVAGE

303-672A. HYDRAULICS. I. Design of channels for non-uniform flow: computation of backwater curves, effect of ice and obstructions. Computations of unsteady flow in open channels; abrupt waves, flood waves, tidal propagation. Navigation locks: manifold design. Water intakes. PROFESSOR SAVAGE

303-673B. HYDRAULICS. II. Water hammer in pipe systems. Surge tanks: purpose, types and design. Turbines and turbine governing: design of hydraulic turbines; governing stability and response. Cavitation. PROFESSOR CHU

*303-674A. FLUID MECHANICS OF POLLUTION. I. Application of fluid mechanics to problems in water pollution control; Mixing, dilution and dispersion of pollutants discharged into lakes, rivers, estuaries, and oceans; Salinity intrusion in estuaries and its effects on dispersion; Biochemical oxygen demand and dissolved oxygen as water quality indicators; Mixing in stratified flow; Thermal pollution; Sewage disposal in the ocean outfall; Oceanic diffusion processes; Oil pollution. PROFESSOR CHU

303-675B. FLUID MECHANICS OF POLLUTION. II. Application of fluid mechanics to problems of air pollution; Properties and sources of air pollution; Atmospheric turbulent diffusion; Char-

acteristics of atmosphere boundary layers; Stable and unstable atmosphere; Aerodynamics of plumes; Wind tunnel modelling and similitude; Coagulation and settling of particles; Visibility and pollution. PROFESSORS COX AND CHU

303-680A. FUNDAMENTALS OF SOIL BEHAVIOUR. Physical and chemical properties of clays; clay-water interaction, soil structure, soil-water potential. Infiltration and diffusion, volume changes. Soil strength parameters, pore water pressures and parameters. PROFESSOR YONG

303-681B. ENGINEERING ASPECTS OF SOIL BEHAVIOUR. (*Prerequisite:* 303-680A.) Consolidation phenomenon, shear strength of cohesive soils, granular soil strength, soil freezing, soil dynamics, creep properties. Equilibrium and compatibility. Yield criteria. PROFESSOR YONG

303-682A. APPLIED SOIL MECHANICS. Composition and properties of natural soils and rock; geologic processes of formation and alteration, site investigations, evaluation of engineering properties for design applications. Case records involving influence of in-situ properties on predicted versus actual performance. Compaction, statistical compaction control. Improvement of soil and rock properties. PROFESSOR OSLER

303-683B. ADVANCED FOUNDATION DESIGN. Design of shallow foundations, bearing capacity and settlement, combined footings and rafts; eccentric and inclined loads, footings in slopes, machine foundations. Deep foundations; caissons and piers, piles, pile groups, tension piles. Tunnels and tunnel linings, flexible culverts. Earth pressures, retaining walls, sheeting and bracing, cofferdams. Case records of foundation performance including failures. PROFESSOR OSLER

303-684A. GROUNDWATER AND SEEPAGE. Flow of incompressible fluids though porous media, fundamentals of groundwater flow, confined and unconfined flow, conformal mapping, graphical flow nets and the use of analogs, flow through earth structures, transient flow surfaces, numerical solutions by means of digital computers. PROFESSOR JAPP

303-685B. DRAINAGE ENGINEERING. Hydraulics of wells, pumping tests, theories of flow into auger holes and drain tubes, seepage from canals and ditches, seepage control in earth structures, soil stabilization by drainage, relief wells, sand drains, foundation drainage and construction de-watering. Surface drainage problems and unsaturated flow. PROFESSOR JAPP

*303-686A. EARTHWORK ENGINEERING. Design and construction of earth and rock fills, stability, improvement of stability with berms, etc.; techniques of fill placement over soft ground, induced pore pressures during fill placement. Stability of cuts in soil and rock, techniques of analysis, influence of pore pressures on stability. Interaction between embankments and adjoining structures, such as abutments. Case records of embankment performance and failures. PROFESSOR OSLER

*303-687B. PAVEMENT DESIGN. Types and properties of bituminous materials, laboratory testing; design of bituminous concrete mixes, construction control. Analysis of rigid and flexible pavement systems using elastic and viscoelastic theory. Design of airfield and highway pavements. Moisture content changes beneath pavements, frost action and frost susceptibility of soils, soil stabilization. Pavement evaluation and strengthening. PROFESSOR OSLER

*303-688A. SOIL DYNAMICS. Basic system dynamics, wave propagation in solids, wave propagation in soils, constitutive relations, dynamic equilibrium and stability, yielding, strain-rate effects, behaviour of soils subjected to cyclic and impulsive loadings. PROFESSOR JAPP

*303-689B. DYNAMICS OF FOUNDATIONS AND EARTH STRUCTURES. Design of foundations subjected to vibratory and impulsive loadings, evaluation of dynamic soil properties, lumped mass analogies, earthquake effects in slope stability and earth-work structures. PROFESSOR JAPP

303-724B. ADVANCED TOPICS IN CONCRETE STRUCTURES. Seminar approach to current research topics in the field of concrete structures. PROFESSOR MIRZA

303-771B. SPECIAL TOPICS IN FLUID MECHANICS. After the development of the general equations of motion, emphasis will be placed on various mathematical methods applied to problems in fluid mechanics. Similarity methods; singular perturbation analysis; method of characteristics; integral methods. Examples will be chosen from various fields. PROFESSOR SAVAGE

*303-791A. PHYSICS AND CHEMISTRY OF SOILS. I. Crystallographic structure of soil particles, clay-water electrolyse systems, X-Ray and D.T.A. studies, concepts of soil water, potentials in soil-water systems. PROFESSOR YONG

*303-791B. PHYSICS AND CHEMISTRY OF SOILS. II. (*Prerequisite:* 303-791A.) Thermodynamics of clay-water interaction, soil freezing, ion and base exchange, clay-water interaction and environmental effects in relation to engineering properties. PROFESSOR YONG

303-792A. MECHANICS OF PARTICULATE MEDIA. *(Prerequisite:* 303-667B.) Properties of particulate media, contact theory, equilibrium and compatibility, elastic-plastic problems, single phase and two phase systems. Yield criteria, critical state analyses, micro and macro analysis, stress distribution, arching effects, bulk flow problems. PROFESSOR YONG

303-794A. SPECIAL TOPICS IN SOIL MECHANICS. Special problems in research, theory, application and design related to Soil Mechanics. PROFESSOR YONG

E 6 73/74 SCHOOL OF COMPUTER SCIENCE

The School of Computer Science provides instruction and research at the graduate level in theory and applications of computer science. Its programs are based on close cooperation with computer science activities in other departments of the University. It offers programs leading to the degrees M.Sc. and Ph.D. in Computer Science, with courses predominantly from those outlined below, augmented by courses in other departments, and with research activities directed either by the staff of the School or members of the Associated Faculty for candidates interested in particular computer applications.

E6.1 STAFF

Professor — G. MARSAGLIA *(Director)*

Associate Professors — J. K. S. McKAY; W. D. THORPE

Assistant Professors — H. D. ABRAMSON; D. J. BURRAGE; J. W. BUTLER; T.H. MERRETT; C. C. PAIGE; G. F. G. RATZER; E. H. REGENER; A. M. VALENTI

Lecturers — K. ANANTHANARAYANAN; B. J. FOX; N. PAUL; G. TOUSSAINT

Considerable work in related subjects is done in other departments, e.g. by

Professors — L. R. AMEY *(Management)*; G. S. CAVADIAS *(Management)*; G. L. d'OMBRAIN *(Electrical Engineering)*; J. LAMBEK *(Mathematics)*; H. RUBEN *(Mathematics)*; P. J. SANDIFORD *(Management)*

Associate Professors— G. BACH *(Mechanical Engineering)*; A. EVANS *(Mathematics)*; M. D. LEVINE *(Electrical Engineering)*; P. SILVESTER *(Electrical Engineering)*; A. D. TEITLEBAUM *(Management)*; G. A. WHITMORE *(Management)*

Assistant Professors — C. A. LASZLO *(Biomedical Engineering)*; R. J. LOULOU *(Management)*; M. MARIN *(Electrical Engineering)*; G. P. H. STYAN *(Mathematics)*; S. ZLOBEC *(Mathematics)*

E6.2 REQUIREMENTS

E6.2.1 REQUIREMENTS FOR THE M.Sc. DEGREE

Candidates with a good background in mathematics and experience in computer programming may be admitted to this program. Candidates who have inadequate backgrounds may be admitted but will be required to take additional qualifying courses. Each candidate's program will be planned individually, taking into account his background and interests. His adviser will be responsible for providing a balanced program, subject to review by the Faculty of the School.

Two programs are offered, leading respectively to the degrees of M.Sc. and M.Sc. (Applied).

E6.2.1.1 **M.Sc.**

Normal requirements are a thesis and six half-year courses. Courses will be chosen with guidance by the candidates' adviser, subject to approval by the Faculty of the School.

E6.2.1.2 **M.Sc. (APPLIED)**

This is a two-year program, normal requirements for which are nine half-year courses and three computer applications projects. The projects are to be supervised by different faculty members. Candidates may obtain approval of the Faculty of the School to combine two or all three projects into an enlarged project. Courses will be chosen with guidance by the candidates' adviser, subject to approval by the Faculty of the School.

E6.2.2

The application deadline for all programs is 1 April.

E6.3 COURSES FOR HIGHER DEGREES

308-610A. INFORMATION STRUCTURES. (3 hours.) Theory and practice of storing and manipulating numerical and non-numerical data. Records, files, lists, strings, stacks, trees, graphs. Accessing and storage, sorting and searching. Combinatorial studies of complexity and efficiency of algorithms for data manipulation. PROFESSOR ABRAMSON

308-611B. DATA STRUCTURE AND LIST PROCESSING TECHNIQUES. (3 hours.) This half course is intended for those who wish to study computer programming techniques intensively. Topics involve discussion and comparison of programming techniques for creation, deletion and manipulation of different types of lists and tree structures. Their application to symbol manipulation. PROFESSOR ABRAMSON

308-614A. COMPUTER METHODS IN SYSTEMS ANALYSIS I. (3 hours.) This half-course is intended for those who wish to develop an analytical approach to economic, commercial and industrial problems which involve complex systems of highly interactive components. The emphasis will be on computer techniques of analysis and their implementation. Topics: Analysis of static systems; production scheduling and inventory control; input-output analysis; network flow; distribution problems; business games. Analysis of dynamic systems: problems of inventory, allocation, waiting time, maintenance; transactions, queues, facilities, states, events; levels, rates, delays, feedback. Special languages and application packages: MPS, GPSS, GASPII, Simscript II, PMS. PROFESSOR MERRETT

308-615B. COMPUTER METHODS IN SYSTEMS ANALYSIS II. (3 hours.) This half-course is concerned with the structure, organisation and retrieval of information with emphasis on computer and data base techniques. Applications to commercial problems and library science are discussed. Topics: Dictionaries. Logical, statistical and syntactical analysis of information. Retrieval. File organisation. Data base retrieval systems. Evaluation of computer methods. Applications. PROFESSOR MERRETT

308-620A. PROGRAMMING LANGUAGES AND COMPILERS. (3 hours.) The structure of programming languages. Syntax and semantics of algorithmic languages. List processing, string manipulating and simulation languages. Compilers, interpreters, translators and processors. PROFESSOR ABRAMSON

308-621B. THEORETICAL ASPECTS OF COMPILER CONSTRUCTION. (3 hours.) Context-free grammars and formal definition of programming languages. Top-down and bottom-up syntactical analysis. Precedence analysis, LR(K) grammars and other special classes allowing effective analysis. Syntax directed transductions and push-down assemblers. Other parsing machines. Generalized stack techniques. PROFESSOR ABRAMSON

308-624A. HIGH-LEVEL COMPUTER LANGUAGES I. (3 hours.) Comparative studies and advanced concepts in high-level computer languages, selected from ALGOL 60, APL, PL/1, COBOL, SNOBOL and others. PROFESSOR McKAY

308-625B. HIGH-LEVEL COMPUTER LANGUAGES II. (3 hours.) An intensive study of recent developments in high-level language construction and development with particular emphasis on new concepts and implementation. PROFESSOR McKAY

308-630A. FORMAL LANGUAGES. (3 hours.) Languages, phrase structure grammars. The Chomsky hierarchy: regular, context-free, context-sensitive and type 0 languages and their corresponding recognition devices. Reductions on grammars; normal forms; operations on languages; closure properties and decidability results. Applications to programming languages. PROFESSOR BUTLER

308-631B. THEORY OF ALGORITHMS AND COMPUTATIONAL COMPLEXITY. (3 hours.) Algorithms of Markov. The universal algorithm. Turing machines. Computability; recursive functions and Church's thesis. Post correspondence problem and other undecidable problems. Computational complexity; machine-based complexity; time and space requirements for various computations. Random access machines and other models for digital computers. Efficiency of algorithms. PROFESSOR BUTLER

308-640A. NUMERICAL ALGORITHMS I. (3 hours.) The study and use of computational algorithms for solving problems involving matrices, nonlinear algebraic equations, approximation, integration, and differential equations. Emphasis will be on the computer aspects of the algorithms, such as numerical stability and economy of computer time and storage. Required background includes a previous numerical course, and FORTRAN and ALGOL programming. PROFESSOR PAIGE

308-641B. NUMERICAL ALGORITHMS II. (3 hours; *prerequisite:* 308-640A.) Advanced topics in computational linear algebra, algorithms for problems involving very large sparse matrices; partial differential equations, non-linear equations. Emphasis on numerical stability of algorithms and efficient usage of the computer. PROFESSOR PAIGE

308-650A. COMBINATORIAL ALGORITHMS I. (3 hours.) Network Flows: Maximal flows, solution by the labeling method, capacitated nodes, flows in undirected or mixed networks. Relation to linear programming. Shortest paths and minimal cost algorithms, with application to the transportation problem, the optimal assignment problem, the warehousing problem. Multiterminal networks. Equivalent networks. Computer of large problems. PROFESSOR BUTLER

308-651B. COMBINATORIAL ALGORITHMS II. (3 hours.) Topics in constructive graph theory including various algorithms for determining isomorphism, planarity and connectivity of graphs, finding longest paths; generation procedures for various classes of graphs. This course is a continuation of 308-650A. PROFESSOR BUTLER

308-660A. NUMERICAL METHODS IN OPTIMIZATION I. (3 hours.) The use of computers in solving unconstrained and constrained optimization problems. Direct search, gradient, quasi-Newton, and penalty function techniques. Methods which treat the constraints directly, as for example in linear programming. A numerical approach will be taken and students will program and develop algorithms for solving large problems on the computer. Required background includes computational linear algebra, FORTRAN, and hopefully, ALGOL. PROFESSOR PAIGE

308-661B. NUMERICAL METHODS IN OPTIMIZATION II. (3 hours; *prerequisite:* 308-660A.) The use of computers in solving large or complex optimization problems. Emphasis on recently developed techniques in optimization. Extension of gradient methods to constrained problems. New fast and numerically stable algorithms for linear programming. Lagrange parameter penalty function techniques. Students will program techniques for different optimization problems, and compare them for accuracy, efficiency, and general usefulness. PROFESSOR PAIGE

308-666A. COMPUTER METHODS IN OPERATIONS RESEARCH I. (3 hours.) Use of the computer in problems arising in operations research. Resource allocation, inventory and production control. Applications of linear programming and its extensions. STAFF

308-667B. COMPUTER METHODS IN OPERATIONS RESEARCH II. (3 hours; *prerequisite:* 308-666A.) Critical path planning and scheduling. Simulation. Applications of queueing theory, Monte Carlo theory, graph theory. Network flows. Applied dynamic programming. STAFF

308-670B. COMPUTER SYSTEMS AND ORGANIZATION. (3 hours.) Control and scheduling of large information processing systems. Loaders, input-output, access control. Batch processing, time sharing, parallel processing. File management, resource allocation, control system languages. Priority servicing, accounting. PROFESSORS RATEER AND VALENTI

308-690A. COMPUTER METHODS IN PROBABILITY AND STATISTICS I. (3 hours.) The use of random numbers in distribution theory, goodness of fit, power and robustness of tests, geometric probability. Algorithms and programs for analysis of data. PROFESSOR MARSAGLIA

308-691B. COMPUTER METHODS IN PROBABILITY AND STATISTICS II. (3 hours; *prerequisite:* 308-690A.) A continuation of 690A. Algorithms and programs for statistical analysis, particularly multivariate analysis, time series and the estimation of distribution and density functions. PROFESSOR MARSAGLIA

308-698A. MONTE CARLO AND SIMULATION I. (3 hours.) Random numbers and how to get them, decide if they are any good and what to do with them. PROFESSOR MARSAGLIA

308-699B. MONTE CARLO AND SIMULATION I. (3 hours; *prerequisite:* 308-698A.) A continuation of 698A. Applications of Monte Carlo (computer programs that use random numbers) to simulation problems, statistics, probability and operations research. PROFESSOR MARSAGLIA

*308-730D. THE COMPUTER IN MATHEMATICAL RESEARCH. (3 hours.) Examples of computer aided research in pure mathematics: number theory, combinatorial theory, finite geometries and configurations, group theory, graph theory, probability and mathematical statistics. Conversely, recent trends in pure mathematics arising from developments in computer science.
PROFESSOR McKAY

308-750A, B. ADVANCED TOPICS: THEORETICAL ASPECTS OF COMPUTER SCIENCE.

308-751A, B. ADVANCED TOPICS: PROGRAMMING.

308-752A, B. ADVANCED TOPICS: SYSTEMS.

308-753A, B. ADVANCED TOPICS: COMPUTER APPLICATIONS.

E7 CRYSTALLOGRAPHY

Students wishing to undertake graduate studies in Crystallography should submit their application to G. Donnay, Professor of Crystallography. Applications will be assessed by an interdisiciplinary committee, appointed for the purpose, and if the application is accepted an appropriate program of study and research will be arranged.

E8 23/74 DEPARTMENT OF ELECTRICAL ENGINEERING

The department is excellently equipped for research and has special interests in the following areas; control engineering, communications, computers, microwave optics, solid state electronics, dynamics of machines and power modulators, high voltage phenomena, network theory, acoustics and surge voltage phenomena. Departmental computing facilities include a PDP-8 interfaced with a PDP-15/40 which are used to study real time computing, graphics, speech, and automatic classification of medical data. The facilities are in addition to the 360/75 and the 370/155 computers operated by the university.

Facilities for study in the microwave area include two anechoic chambers with automatic field intensity and phase plotters. Vacuum deposition and r-f sputtering apparatus are used for the fabrication of solid state devices, as are electromagnets for measurements of the electrical and magnetic properties of solids. Cryogenic facilities are also available. There is a fully equipped laboratory for the study of electric machine dynamics, and also laboratory facilities for high-voltage phenomena.

E8.1 STAFF

Professors — T. H. BARTON; R. P. COMSA; G. L. d'OMBRAIN; G. W. FARNELL *(Chairman)*; T. J. F. PAVLASEK; P. SILVESTER; G. ZAMES

Associate Professors — P. R. BÉLANGER; E. L. ADLER; M. L. BLOSTEIN; C. H. CHAMPNESS; M. J. FERGUSON; M. FUKADA; A. A. GUNDJIAN; M. D. LEVINE; N. RUMIN; E. SIGUROSON; F. SPITZER; G. L. YIP

Assistant Professors — B. A. HOWARTH; H. C. LEE; A. S. MALOWANY; B. T. OOI

Lecturers — C. W. BRADLEY; K. L. FRASER

Special Lecturers — R. BARTNIKAS; A. BRAIS; B. J. GEVAY; M. A. MARIN

E8.2 REQUIREMENTS

E8.2.1 REQUIREMENTS FOR THE GRADUATE DIPLOMA

A Graduate Diploma in Electrical Engineering may be awarded to suitably qualified candidates on completion, at a satisfactory level, of five acceptable graduate level courses given in the evening under the auspices of the McGill Centre for Continuing Education. Course descriptions for the present session will be found in the Continuing Education Calendar. Application should be made to the Faculty of Graduate Studies and Research for admission and the award of the Diploma *after* approved program of courses has been completed to the satisfaction of the Electrical Engineering Department.

E8.2.2 REQUIREMENTS FOR THE MASTER'S DEGREE

Candidates who fulfil the general requirements of the Graduate Faculty and who possess a first degree in engineering may be accepted for a course of study leading to the M.Eng. degree. The program normally consists of six courses and a thesis project. The average time taken to complete the requirements is one calendar year plus one academic year.

E8.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates who fulfil the general requirements of the Graduate Faculty and who possess a Master's degree in Engineering may be accepted for a course of study leading to the Ph.D. degree in Electrical Engineering. The minimum time taken to complete the requirements is two years. In exceptional circumstances a candidate may be accepted for the Ph.D. degree who does not possess a Master's degree but he will be registered first as Master's candidate.

E8.3 COURSES FOR HIGHER DEGREES

Not all of these courses are given every year.

304-610A. LINEAR SYSTEMS THEORY. Representations and basic properties of continuous systems; controllability and observability; system reduction; irreducible realization of transfer function matrices; state feedback, state estimators, and pole-placement compensators; stability anaylsis. Similar topics for discrete-time systems. PROFESSOR LEE

304-611A. NONLINEAR SYSTEMS. Limit cycles, singular points, behaviour near equilibrium points and input-output behaviour by Liapunov and Functional Analysis methods.

304-612A. RANDOM PROCESSES. Markov processes, Markov chains, correlation functions and spectra, renewal processes, queues, queueing networks.

304-613B. COMPUTER-AIDED NETWORK ANALYSIS AND DESIGN. Computer-aided techniques for the d c, transient and frequency domain analysis of linear and/or nonlinear electronic networks; methods of sensitivity analysis; elementary concepts in optimization theory; application of optimization techniques to circuit design. PROFESSOR BLOSTEIN

304-614B. NETWORK SYNTHESIS. Properties of positive real functions; determination of system functions; synthesis of driving-point functions; synthesis of lossless two-ports and RC two-ports; approximation problems: synthesis of active networks. PROFESSOR FUKADA

304-615B. OPTIMIZATION TECHNIQUES. Simultaneous and sequential single variable search, geometry of multi-dimensional response surfaces, tangent and gradient methods, pattern search, experimental error analysis, linear and nonlinear programming techniques, critical path method. PROFESSOR MALOWANY

304-616B. OPTIMAL CONTROL THEORY. Basic concepts of static optimization. Variational solutions for discrete — and continuous — time control problems. Pontryagin's maximum principle. Dynamic programming. Computational algorithms. Singular control problems. The linear regulator problem. PROFESSOR BÉLANGER

304-617B. DIGITAL SIGNAL PROCESSING. Discrete-time linear systems theory, digital filter synthesis techniques, quantization effects in digital filters, discrete Fourier transforms including FFT algorithms, high-speed convolution and correlation techniques. PROFESSOR BLOSTEIN

304-618A. COMPUTER CONTROL SYSTEMS. Project planning, economic aspects, characteristics of Process Control Computers, instrumentation for computer control, computer-process

communication, direct digital and supervisory control, programming for computer control, implementation of modern control techniques. DR. BRAIS

304-619A. STOCHASTIC CONTROL. Kalman-Bucy filters, performance, separability, suboptimal control, noisy linear modelling, identification, optimization.

304-620A. INFORMATION THEORY. The measure of information; source coding or noiseless coding; discrete memoryless channels and the channel capacity; the noisy channel coding theorem; introduction to error-correcting codes. PROFESSOR FUKADA

304-621B. CODING THEORY. The fundamental properties of error-correcting codes; the structure of Galois fields; definitions and general properties of cyclic codes; BCH codes for correcting multiple errors; burst-error correcting codes; convolutional codes and sequential decoding. PROFESSOR FUKADA

304-622A. ADVANCED COMMUNICATION SYSTEM ANALYSIS. This course will allow the student to study the foundations required for modelling advanced communication systems. Analysis of specific classes of systems such as telephone, satellite, troposcatter, microwave, for both analog and digital data. PROFESSOR FERGUSON

304-623B. REAL TIME PROGRAMMING. Languages for on line time-sharing and graphic display systems; systems programming for real time systems; languages for process control computers.

304-625B. ARTIFICIAL INTELLIGENCE. Definition models of an artificial intelligence, data structures, heuristic programming, learning, pattern recognition, man machine interaction, practical applications and study of selected research topics. PROFESSOR LEVINE

304-630A. SOLID STATE I. Free-electron model; band theory, Kronig Penny model, Brillouin zones, three-dimensional perturbation approach; lattice vibrations, Debye model; electrical conductivity. PROFESSOR ADLER

304-631B.SOLID STATE II. Thermodynamics of solids, Boltzmann transport equation, tensor properties of crystals, concepts of crystal symmetry. PROFESSOR GUNDJIAN

304-632D. INTRODUCTORY QUANTUM MECHANICS. Introduction to the quantum theory applicable to electron devices as far as time-dependent perturbation theory and electron spin (level of course about that of "Basic Quantum Mechanics" by R. White, Wiley). PROFESSOR FARNELL

304-633B. SEMICONDUCTOR DEVICES. Mechanisms that limit the operating range of bipolar transistors: impact inonization; high current operation; defects and their influence on leakage currents and life-time; surface effects; influence of geometry; surfaces. Field-effect transistors. Topics from current device research. PROFESSOR RUMIN

304-634A. SPECIAL TOPICS IN SOLIDS I. Discussion of topics in semiconductor electronics and electronic properties of materials in areas of current interest to the department. PROFESSOR CHAMPNESS

304-635B. SPECIAL TOPICS IN SOLIDS II. Dielectric properties and molecular structure of solids and liquids. Dielectric theory and application. DR. BARTNIKAS

304-641B. APPLIED ELECTROMAGNETIC THEORY. Mathematical techniques, analytical and numerical, for solving E.M. boundary value problems. Maxwell's equations, wave dispersion, waves in gyrotropic media, Huygen's principle and Fresnel diffraction, Babinet's principle; Green's functions and integral equations, angular spectrum of plane waves, cylindrical and spherical wave functions, perturbational and variational techniques. Waveguide, antenna, scattering and diffraction problems. PROFESSOR YIP

304-643B. NUMERICAL METHODS IN ELECTROMAGNETICS. Mathematical representation of fields. Discrete approximations for continuous differential and integral operators. Methods for solving deterministic and eigenvalue problems by direct and iterative means. PROFESSOR SILVESTER

304-644B. CONTROL RECTIFIER CIRCUITS. Simple polyphase rectifiers. Thyristor characteristics. Fully and semi-controlled bridges. Interphase transformers. Commutation, regulation and equivalent circuits. Harmonic content. Active loads. Cycloconverters.

304-682A. UNIFIED THEORY OF ELECTRIC MACHINES. Advanced topics in electric machines treated by dynamic circuit theory. PROFESSOR BARTON

304-685A. HIGH VOLTAGE ENGINEERING. Eletctrical discharges in gases; uniform and non-uniform fields; corona discharges; the spark mechanism. Generation and measurement of high direct, alternating and impulse voltages. PROFESSOR COMSA

304-692A. MICROWAVE THEORY, ANTENNAS AND PROPAGATION. Wave guiding systems and devices; microwave circuit analysis; generation and amplification; measurement techniques; antenna electrodynamics; linear and aperture antennas, arrays; wave propagation in various media. PROFESSORS PAVLASEK AND YIP

304-693B. GRADUATE SEMINAR IN MICROWAVE OPTICS. Advanced seminar on topics in antennas, propagation and diffraction theory in relation to current research in microwave theory. PROFESSORS PAVLASEK AND YIP

304-694D. ANALOG, DIGITAL, HYBRID COMPUTER TECHNIQUES FOR ENGINEERING PROBLEMS. A comprehensive study of analog, digital and hybrid computer techniques for solving field problems governed by ordinary and/or partial differential equations, including formulation of engineering problems by means of these types of equations, analog simulation and digital simulation methods. Assignments and examples are taken from present industrial problems.

304-696D. LOW FREQUENCY ELECTROMAGNETIC THEORY. Analytic and experimental methods of solving electromagnetic field problems are examined, with special reference to Laplace's equation and the diffusion equation. PROFESSOR SILVESTER

E 9 DEPARTMENT OF GEOGRAPHY

E9.1 STAFF

Professors — J. B. BIRD *(Chairman);* H. C. BROOKFIELD *(on leave 1973-74);* B. J. GARNIER; T. L. HILLS; T. LLOYD

Associate Professors — M. A. CARSON; R. N. DRUMMOND; J. M. GILMOUR; P. G. HOLLAND; J. LUNDGREN; B. H. MASSAM; F. H. NICHOLSON *(Director, Subarctic Research Laboratory, Schefferville, Que.);* J. T. PARRY

Assistant Professors — G. O. EWING; W. B. KEMP; T. MOORE; S. OLSON; L. VEILLEUX *(Part-Time);* E. WADDELL; R. G. WILSON; R. C. ZIMMERMANN

Lecturer — J. J. DRAKE

Research Associate — G. SZEICZ

Honorary Staff — F. B. MÜLLER; G. JACOBSEN

E9.2 REQUIREMENTS

E9.2.1 ADMISSION

The Department offers the degrees of M.A., M.Sc. and Ph.D. in Geography. Inquiries and applications should be directed to the Graduate Affairs Office, Department of Geography.

E9.2.2 REQUIREMENTS FOR THE M.A. DEGREE

The following canadidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.A. degree of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography at McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good their deficiencies in undergraduate training in that session. These candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may register for the M.A. degree in Geography in certain circumstances, but in general they will be required to register for a qualifying year; and will not be able to submit their theses until the end of the second resident year.

Candidates must:

(1) pass written (and in some cases oral) examinations in at least two full graduate courses, at least one of which is in the Geography Department;

(2) attend the Graduate Colloquium, Geography 181-631D and such additional courses in Geography or cognate subjects as the Chairman and the student's director of research think fit. The additional courses may be for audit or examination;

(3) submit a thesis in an appropriate area of geographical inquiry.

The quality of the thesis will determine the final standing of the student.

E9.2.3 REQUIREMENTS FOR THE M.Sc. DEGREE

The following candidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.Sc. degree of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography from McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good their deficiencies in undergraduate training in that session. Thesse candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may register for the M.Sc. degree in Geography in certain circumstances but in general they will be required to register for a qualifying year, and will not be able to submit their theses until the end of the second resident year.

Candidates must:

(1) pas written (and in some cases oral) examinations in at least two full graduate courses, at least one of which is in the Geography Department;

(2) attend the Graduate Colloquium, Geography 181-631D and such additional courses in Geography or cognate subjects as the Chairman and the student's director of research think fit. The additional courses may be for audit or examination;

(3) submit a thesis in an appropriate area of geographical inquiry.

The quality of the thesis will determine the final standing of the student.

E9.2.4 REQUIREMENTS FOR THE Ph.D. DEGREE

Students who have attained high standing in the Master's degree in Geography at McGill may be permitted to proceed to the Ph.D. in two further years. Rarely, a student may be allowed to register for the Ph.D. degree without having first taken the Master's degree. The normal duration of a program, including field work where required, is three years.

Normally, the Department will restrict admission to the Ph.D. program to students prepared to work in one of the fields of human or physical geography in which specialized supervision is offered. These, which cover a wide range of systematic areas, are listed in documents available from the Department. Most work is carried out in eastern Canada, the Northlands or the American tropics, but some topics range further afield.

A broad familiarity with the content of modern geography will be expected of all students in the Ph.D. program. Competence in selected fields related to the research is tested in examinations normally held within the first year of study.

Candidates must:

(1) remedy any deficiencies in their formal training in geography and necessary cognate subjects;

(2) submit themselves for a comprehensive examination (183-701D) comprising prepared papers and an oral examination. Competence in certain fields may be tested separately, but as a necessary part of this examination;

(3) submit a thesis based on original research in human or physical geography;

(4) attend the Graduate Colloquium, Geography 181-631D, during one of their resident years, and other courses as determined individually;

(5) comply with a language requirement if this is so recommended by the student's committee.

To satisfy these requirements, the candidate may take any of the graduate or undergraduate courses offered by the Department.

E9.3 COURSES AND SEMINARS FOR HIGHER DEGREES

All courses meet once each week.

183-602A. URBAN GEOGRAPHY, PART I. A critical review of environmental and spatial preference and perception in an urban context, together with an introduction to appropriate measurement and scaling techniques. PROFESSOR EWING

183-603B. URBAN GEOGRAPHY, PART II. Allocation-location problems in the public and private sectors; urban model-building; urban politics. PROFESSOR MASSAM

183-604A. ECONOMIC GEOGRAPHY, PART I. A geographical study of the phenomenon of entrepreneurship; its logistical, organizational and locational characteristics; scale of operation; the different forms of entrepreneurship in the economic geography of different levels of economic development. PROFESSORS LUNDGREN AND GILMOUR

183-605B. ECONOMIC GEOGRAPHY, PART II. A critical review of research on manufacturing industry, with particular emphasis on (a) the analysis of industrial agglomeration, (b) manufacturing in economically disadvantaged areas, (c) some geographical aspects of the multinational corporation, and (d) innovation and technology transfer.
PROFESSORS GILMOUR AND LUNDGREN

183-606A. GEOGRAPHY AND DEVELOPMENT, PART I. A review of the spatial problems of economic development in countries of the developing world, together with an examination of processes generating spatial inequality. Ecological considerations in economic development.
PROFESSOR HILLS AND STAFF

183-607B. GEOGRAPHY AND DEVELOPMENT, PART II. An examination of development problems in rural and urban areas of the Third World, with emphasis on agrarian structures and the social geography of urbanization. Regional emphasis will vary according to the interests of members of the seminar. PROFESSOR HILLS AND STAFF

183-608D. CULTURAL GEOGRAPHY. Discussion of theoretical concepts and methods of analysis in the study of cultural adaptation, developing a cross-cultural perspective in the analysis of both urban and rural cultural systems. The use of systems analysis; energy and information flow in relation to behaviour; adaptive strategies. Analysis of specific cultural systems and issues. PROFESSORS KEMP, WADDELL AND STAFF

*183-609A, B. HUMAN GEOGRAPHY: SOCIAL AND BEHAVIOURAL PROBLEMS. A survey of the treatment of society, social institutions and the individual as units of analysis within geography. Explanation and cognitive description in human geography.

183-611D. ADVANCED CLIMATOLOGY. An examination of the elements of the heat and water balance over land surfaces with particular reference to soil type and natural vegetation. Changes of climate and vegetation in the Pleistocene and Recent periods will be analysed.
PROFESSOR WILSON

183-612D. ADVANCED PHYSIOGRAPHY. An analysis of recent advances in geomorphology. The physical landscapes of several parts of North America (including the Arctic) and the tropical world will be examined in detail. PROFESSORS BIRD, CARSON, MOORE AND PARRY

183-613D. ADVANCED BIOGEOGRAPHY. An examination of the nature, history, structure and function of biogeography. The importance of man both in and on ecological systems is stressed. Reports, papers and field work will be required.
PROFESSORS HOLLAND AND ZIMMERMANN

183-622A, B. HUMID TROPICAL ENVIRONMENTS. A geographical approach to the study of sample rain-forest and savanna landscapes of the humid tropics, with special attention to the human impact on the balance between forest and savanna. PROFESSOR HILLS

183-623A. SEMINAR ON REGIONAL RESEARCH, PART I. Presentation of background, and discussion of research interests of varied nature, in a region of common interest to a group of graduate students and staff. Regions will vary according to interest; probable selections will include Québec, the Gulf of St. Lawrence and the Maritimes, the Arctic and Northlands, the Caribbean, tropical Latin America. STAFF

183-624B. SEMINAR ON REGIONAL RESEARCH, PART II. (See course 183-623A for description.)
STAFF

186-631D. METHODS OF GEOGRAPHICAL RESEARCH. A review of the accepted methods of research in geographical problems, in both physical and human fields. The approach will be practical, and will require the presentation of formal research papers for criticism and discussion.
PROFESSOR BIRD AND STAFF

183-632A, B. ADVANCED CARTOGRAPHY. A systematic examination of modern geographic-cartographic techniques for the collection, evaluation, presentation and reproduction of spatially distributed data. Practical experience in the laboratory, the photographic darkroom field work and visits to cartographic agencies are an integral part of the course.
PROFESSOR DRUMMOND

183-633D. INTERPRETATION OF AIR PHOTOS AND IMAGERY. A systematic examination of procedures in remote sensing; air photos — basic photogrammetry and interpretation procedures; imagery — review of systems and interpretation of image displays.
PROFESSOR PARRY

183-634A, B. QUANTITATIVE METHODS IN GEOGRAPHY. This course comprises two distinct parts. The first term is devoted to the application of advanced quantitative techniques to geography; these techniques include simple and multiple regression/correlation analysis; factor and component analysis: one and two dimensional trend surface, harmonic and spectral analysis. The second term is left open in order to accommodate the particular interests of the students in any year.
PROFESSOR CARSON

E9.4 McGILL SUBARCTIC RESEARCH LABORATORY

This laboratory (under the direction of Professor Nicholson) is at Knob Lake (Schefferville), in the heart of Labrador-Ungava. Facilities exist for research in most aspects of physical geography. Extensive field programs are arranged. All inquiries should be addressed to the Chairman, Geography Department.

E 10 DEPARTMENT OF GEOLOGICAL SCIENCES

Opportunities for advanced study and research in Geology, Geochemistry and Geophysics are offered to qualified students. Graduate programs leading to the M.Sc., M.Sc. (Applied), and Fh.D. degrees and to a diploma are offered.

Financial assistance is available in the form of demonstratorships, research assistantships and some scholarships.

E10.1 STAFF

Professors — C. W. STEARN *(Chairman);* GABRIELLE DONNAY; J. A. ELSON; V. A. SAULL; J. S. STEVENSON

Associate Professors — R. DOIG; P. R. EAKINS; R. H. GRICE; E. W. MOUNTJOY; G. R. WEBBER

Assistant Professors — H. HELMSTAEDT; R. HESSE; W. H. MacLEAN; R. F. MARTIN

With the assistance of — R. N. YONG and J. C. OSLER *(Civil Engineering and Applied Mechanics);* D. F. COATES, J. E. G. SCHWELLNUS, W. M. TELFORD and J. E. UDD *(Mining Engineering and Applied Geophysics);* B. d'ANGLEJAN *(Marine Sciences);* R. L. CARROLL *(Redpath Museum)*

E10.2 REQUIREMENTS

E10.2.1 **ADMISSION**

Candidates are to indicate their field, or fields, of interest when making formal applications for admission. Specific inquiries concerning the department should be addressed to the Supervisor of Graduate Students, Department of Geological Sciences.

E10.2.2 **ELIGIBILITY**

Applicants should have an academic background equivalent to that of a McGill graduate in the honours or the major in geology course. The admissions committee may modify the requirements in keeping with the field of graduate study proposed. In other cases a qualifying year may be required. (See section 29, Graduate Faculty Regulations.)

E10.2.3 **M.Sc. DEGREE**

a) Research and M.Sc. thesis.

b) Three courses to be chosen with approval of the research director and department chairman.

E10.2.4 **Ph.D. DEGREE**

a) Research and Ph.D. thesis (see section 26, Graduate Faculty Regulations).

b) Course requirements. An approved course of study will be selected in consultation with the student's director of research according to the student's particular interest and training.

c) Comprehensive examinations are required for all Ph.D. candidates (see section 23, Graduate Faculty Regulations).

d) There are no language requirements for the Ph.D. degree.

E10.2.5 **DIPLOMA**

a) Applicants for the diploma must fulfil the requirements for entry into the Graduate Faculty at McGill University and for graduate study in the Department of Geological Sciences, as stated in the Announcement.

b) The diploma will be awarded for the successful completion of one academic year of graduate studies comprising at least 3 graduate courses to be chosen with the approval of the Department.

c) Students who are awarded the diploma with high standing may be allowed to proceed to a higher degree and will be given appropriate credit towards such a degree. Students wishing to keep open the possibility of entering either the M.Sc. course with thesis or the M.Sc. (Applied) course are advised to follow a program which will satisfy the first year requirements for these courses.

E10.2.6 **M.Sc. (APPLIED) DEGREE**

Two options are offered in the two-year non-thesis program for the M.Sc. (Applied) degree: A — Mineral Exploration and B — Engineering Geology.

E10.2.6.1 **Option A — Mineral Exploration**

The general aim of this two-year course is to train students to be capable of planning and carrying out effective exploration for mineral deposits, and of valuing mineral deposits in various stages of development and production. Such students must be provided with:

(1) a sound theoretical and practical background in the use of modern techniques of exploration,

(2) additional information on the economic and technical considerations which distinguish ore bodies from other mineral deposits.

(3) some insight into the legal and financial aspects of mineral exploration.

Applicants must have fulfilled the requirements for graduation in either: (a) the McGill B.Sc. Honours or Major program in Geological Sciences or its equivalent, or b)

the McGill B.Eng. program in Mining, or its equivalent. They must have taken the following courses or their equivalents:

GEOLOGY 186-344B. ORE MINERALS.

GEOLOGY 186-441A. MINERAL DEPOSITS.

If the total of deficiencies is too great the student may have to take a "Qualifying year" (see paragraph 29b, of General Information and Faculty Regulations, Faculty of Graduate Studies and Research).

To provide a sound background to the problems of Mineral Exploration and allow a degree of specialization the curriculum consists of:

a) 9 "core" or essential courses,

b) 3 optional courses approved by the departmental Director of Graduate Studies.

Possible areas of specialization are:

Geology in Mineral Exploration
Geochemistry in Mineral Exploration
Geophysics in Mineral Exploration
Exploration Management
Mineral Economics
Conservation and Exploration
Geological Feasibility and Mine Development

HONOURS GEOLOGICAL SCIENCES GRADUATES — FIRST YEAR

GEOLOGY 186-612D. APPLIED STRUCTURAL GEOLOGY.

GEOLOGY 186-602D. GEOLOGICAL COLLOQUIUM.

GEOLOGY 186-702D. PHOTOGEOLOGY.

MINING 307-202A and 307-302B. MATHEMATICAL APPLICATIONS IN THE MINERAL INDUSTRY I AND II.

MINING ENGINEERING GRADUATES — FIRST YEAR

Mining Engineering graduates will be accepted but in the above program will substitute courses required for the Honours Geology degree for the engineering subjects they have already had.

COMMON SECOND YEAR

GEOLOGY 186-604D. PETROLOGY OF MINERAL DEPOSITS.

GEOLOGY 186-605D. MINERAL EXPLORATION.

GEOLOGY 186-606D. APPLIED GEOCHEMISTRY.

GEOLOGY 186-713D. ADVANCED ECONOMIC MINERAL DEPOSITS.

MINING 307-351A and 307-451B. ADVANCED EXPLORATION GEOPHYSICS I AND II.

RECOMMENDED OPTIONS

METALLURGY 306-080A. MINERAL SEPARATION .

GEOLOGY 186-720D. ASSIGNED READINGS AND SEMINAR.

MINING 307-001A. INTRODUCTION TO THE MINERAL INDUSTRY AND 307-101B. MINING ENGINEERING TECHNIQUES.

MINING 307-103A and 307-203B. MINERAL INDUSTRY ECONOMICS I AND II.

Candidates obtaining this degree with distinction may be accepted as candidates for the Ph.D. degree.

E10.2.6.2 Option B — Engineering Geology

The purpose of the two-year non-thesis graduate program in engineering geology is to enable geologists and engineers to develop an ability to apply knowledge of geological factors to the design, construction and maintenance of engineering structures.

During the first year of the two-year course, geology graduates and engineering graduates will follow different programs to broaden their basic knowledge and to bring both groups to a comparable level. Programs of a minimum of the five full courses will be selected by the department according to the candidate's background and interest from the courses listed below. Appropriate substitutions may be approved. In the second year, the program will consist of four prescribed courses, as set forth in the following list of courses.

HONOURS GEOLOGICAL SCIENCES GRADUATES — FIRST YEAR

GEOLOGY 186-603A. ENGINEERING GEOLOGY.
GEOLOGY 186-609B. GROUND WATER GEOLOGY.
GEOLOGY 186-702D. PHOTOGEOLOGY.
GEOLOGY 186-706D. ADVANCED SEDIMENTOLOGY.
GEOLOGY 186-707D. GEOMORPHOLOGY.
GEOLOGY 186-714D. GLACIAL AND PLEISTOCENE GEOLOGY.
GEOLOGY 186-715A. INSTRUMENTAL ANALYSIS.
GEOLOGY 186-717D. ADVANCED EARTH PHYSICS.
GEOLOGY 186-721D. RECENT SEDIMENTS AND MARINE GEOLOGY.
MATHEMATICS 189-314A and 189-315B. ADVANCED CALCULUS AND DIFFERENTIAL EQUATIONS.
ENGINEERING 303-212A. SOIL MECHANICS.
ENGINEERING 303-317B. FOUNDATIONS.
ENGINEERING 303-653A. STREAM POLLUTION AND CONTROL.
COMPUTER SCIENCE 308-200A or B. INTRODUCTION TO DIGITAL COMPUTERS.
MINING 307-251A. GEOPHYSICAL EXPLORATION.
MINING 307-304B. BEHAVIOUR OF ROCK STRUCTURES.

ENGINEERING GRADUATES — FIRST YEAR

Basic geology courses as necessary.
GEOLOGY 186-603A. ENGINEERING GEOLOGY.
GEOLOGY 186-609B. GROUND WATER GEOLOGY.
ENGINEERING 303-212A. SOIL MECHANICS.
ENGINEERING 303-317B. FOUNDATIONS.
ENGINEERING 303-680A. FUNDAMENTALS OF SOIL BEHAVIOUR.
ENGINEERING 303-681B. ENGINEERING ASPECTS OF SOIL BEHAVIOUR.
ENGINEERING 303-682A. APPLIED SOIL MECHANICS.
ENGINEERING 303-683B. ADVANCED FOUNDATION DESIGN.
ENGINEERING 303-684A. GROUND WATER AND SEEPAGE.
ENGINEERING 303-685B. DRAINAGE ENGINEERING.
COMPUTER SCIENCE 308-200A or B. INTRODUCTION TO DIGITAL COMPUTING.
MINING 307-605A. ROCK MECHANICS I.
MINING 307-606B. ROCK MECHANICS II.
MINING 307-609D. APPLIED GEOPHYSICS SEMINAR.

SUMMER VACATION

All candidates will work for a least two months on an approved engineering geology project. A report of this work will be required as part of the Geology 186-722D course in the second year program.

COMMON SECOND YEAR

GEOLOGY 186-722D. ADVANCED ENGINEERING GEOLOGY.
GEOLOGY 186-723D. ADVANCED SOIL MECHANICS. Or one other soil mechanics course as approved.
GEOLOGY 186-720D. ASSIGNED READINGS AND SEMINAR *or* AN APPROVED OPTION.
TWO TERMS OF ROCK MECHANICS *or* OTHER APPROVED COURSES.

E10.3 GRADUATE COURSES

186-501A. GEOLOGY FOR ENGINEERS. (2 hours lectures, 2 hours laboratory; 1st term.) An introduction to general geology. PROFESSOR GRICE

186-602D. GEOLOGICAL COLLOQUIUM. (2 hours lectures or seminar and assignments.) Introduction to graduate work in the geological sciences. The general course divisions are

philosophy and history of the geological sciences, contemporary geological research, and the presentation of research results. PROFESSOR SAULL

186-603A. ENGINEERING GEOLOGY. (2 hours lecture, 2 hours laboratory.) Introduction to the application of geology in Civil Engineering. PROFESSOR GRICE

186-604D. PETROLOGY OF MINERAL DEPOSITS. (2 hours lectures or seminar, 3 hours laboratory.) Petrographic study of fresh and altered rocks associated with ore-deposits and discussion of processes involved in their formation. PROFESSOR STEVENSON

186-605D. MINERAL EXPLORATION AND MINING GEOLOGY. (2 hours lectures, 2 hours laboratory and assigned problems.) Methods of searching for mineral deposits; modern exploration programs; development of mineral deposits; evaluation of mineral deposits. PROFESSOR EAKINS

186-606D. APPLIED GEOCHEMISTRY. (2 hours seminar and three hours laboratory.) Principles governing the distribution of elements, particularly in the secondary stage of the geochemical cycle; the use of geochemistry in mineral exploration. Individual projects in applied geochemistry. PROFESSOR WEBBER

186-609B. GROUND WATER GEOLOGY. (2 hours lectures or seminar; 2 hours laboratory.) Introduction to the geological aspects of ground water occurrence and chemistry and to elementary ground water flow and well problems. PROFESSOR GRICE

186-610D. PROBLEMS IN GEOLOGICAL SCIENCES. (2 hours lectures.) Recent advances in the fields of geological time and the stratigraphic record, materials and processes of the crust, global tectonics and planetary geology, environmental geology and resources.

186-611D. STRUCTURAL ANALYSIS OF DEFORMED ROCKS. (2 hours.) Lectures, seminars, and laboratory studies covering modern topics in structural geology. PROFESSOR HELMSTAEDT

186-612. APPLIED STRUCTURAL GEOLOGY. (2 hours lectures or seminar and 3 hours lab. or problems.) PROFESSOR EAKINS

186-700D. PRELIMINARY DOCTORAL EXAMINATION.

186-702A. PHOTOGEOLOGY. (3 hours laboratory and problems.) The interpretation of air photographs in terms of lithology, structure and surficial deposits, elementary photogrammetry. PROFESSOR ELSON

186-703D. ADVANCED MINERALOGY. (4 hours lectures or seminar and laboratory.) Discussion of the chemical and optical variations, and current classifications within the more important mineral groups. The laboratory gives practice in the precise microscopic identification of individual members of these groups using oil immersion and universal stage techniques. PROFESSOR STEVENSON

186-704D. GEOCHEMISTRY. (2 hours lectures or seminar and assignments.) Current problems in general geochemistry. PROFESSORS SAULL AND WEBBER

*186-705D. PETROLOGY. (2 hours lectures or seminar.) Selected topics on recent theoretical and experimental work in igneous and metamorphic petrology. PROFESSORS HELMSTAEDT AND MARTIN

*186-706D. ADVANCED SEDIMENTOLOGY. (2 hours lectures or seminar and 3 hours laboratory.) Classical and recent papers on sedimentary rocks, processes of their formation, sedimentary environments and basin evolution are discussed. Methods of study of sedimentary rocks and a survey of sedimentary rocks in thin sections are included in the laboratory. PROFESSORS HESSE AND MOUNTJOY

186-707D. GEOMORPHOLOGY. (2 hours lectures or seminar, and problems.) Geological interpretation of topography, and surficial deposits. PROFESSOR ELSON

*186-708D. ADVANCED STRATIGRAPHY. (2 hours lectures or seminar, laboratory work.) Problems of the stratigraphy of North America. The geological evolution of the continent as it is recorded in the Paleozoic, Mesozoic, and Cenozoic sedimentary rocks. PROFESSOR STEARN

186-709D. GEOLOGY OF PETROLEUM. (2 hours lectures or seminar.) Theories of hydrocarbon and petroleum origin; migration of petroleum; character of the reservoir and condition of fluids and gases in it. Structural traps, stratigraphic traps. A brief survey of the petroleum resources of the world. Classical and recent papers on petroleum geology are discussed. PROFESSOR MOUNTJOY

186-710D. ADVANCED PALEONTOLOGY. (2 hours seminars and problems.) Reading and discussion on the fossil record, use of statistics, problems of classification, paleoecology, biostratigraphy, evolution, etc. PROFESSOR STEARN

186-711D. MINERALOGY OF CRYSTALLINE ROCKS. (2 hours lectures or seminar.) A survey of the mineralogy of igneous and metamorphic rocks. PROFESSOR MARTIN

186-712D. X-RAY CRYSTALLOGRAPHY. (6 hours laboratory; *Prerequisite:* Geology 186-211A.) Techniques of x-ray diffraction applied to a crystallographic research problem.
PROFESSOR DONNAY

186-713D. ADVANCED ECONOMIC GEOLOGY. (2 hours lectures or seminar and assigned problems.) Ore genesis, discussion of physical-chemical aspects and classic examples; world distribution of mineral resources. PROFESSOR MacLEAN

*186-714D. GLACIAL AND PLEISTOCENE GEOLOGY. (2 hours lectures or seminar.) Glacial geology and the effects of glacial climates in peripheral areas; stratigraphy and chronology of the Quaternary Era. PROFESSOR ELSON

186-715A. INSTRUMENTAL ANALYSIS. (1 hour lecture, 3 hours laboratory.) Application of instrumental methods of analysis to materials of geological interest. Electron microprobe, optical spectrography, x-ray spectrometry, x-ray diffraction, atomic absorption.
PROFESSORS MacLEAN AND WEBBER

186-717D. ADVANCED EARTH PHYSICS. (3 hours lectures or seminar and assignments.) Discussion of selected topics in earth physics. PROFESSORS SAULL AND TELFORD

186-719D. ISOTOPE GEOLOGY. (2 hours lectures or seminar.) The nature of isotopes; mass spectrometry; geochronology; significance of certain isotope ratios in minerals and rocks.
PROFESSOR DOIG

186-720D. ASSIGNED READINGS AND SEMINAR. Field of study and director to be specified.

186-721D. RECENT SEDIMENTS AND MARINE GEOLOGY. (Also Marine Sciences 395-721-D.) (2 hours seminar, lectures and assignments.) Classical and recent research concerning principles of sedimentation, sedimentary environments including deltas, tidal flats, continental shelf and slope, geosynollnes, ocean basins, submarine canyons, ocean currents, turbidity currents, sediment geochemistry, reefs, ocean structure.
PROFESSORS D'ANGLEJAN, HESSE AND MOUNTJOY

186-722D. ADVANCED ENGINEERING GEOLOGY. (2 hours seminar, 2 hours laboratory or assignments.) Application of knowledge of geological materials and processes in the investigation, design, construction and maintenance of foundations and other engineering projects.
PROFESSOR GRICE

186-790. DOCTORAL LANGUAGE EXAMINATION.

E 11 MARINE SCIENCES CENTRE

Graduate students will take such courses, including cognate courses in other departments, as are considered necessary for their training and for the development of the particular fields of specialization. All students are expected to take courses 395-440A, 395-441B (for these two courses, see Section B), 395-660D and 395-309A. Primary emphasis for both the M.Sc. and Ph.D. degrees is placed upon research and thesis presentation. The comprehensive examination for the Ph.D. candidates usually takes place at the end of the second year of study. It covers the whole field of marine science but allows for the specialized interests and training of each student, in Botany, Zoology, Microbiology, Physics or Geology.

Students are accepted on the basis of a first or second class honours degree in an appropriate subject, or high standing in general science; a qualifying year in addition to the minimum degree requirement may be necessary, at the discretion of the Chairman or Vice-Chairman.

The Marine Sciences Centre is inter-departmental in scope, emphasizing the essential inter-disciplinary nature of the science of Oceanography. Excellent laboratory and library facilities are available for research, and opportunities for field work exist in the Arctic, the estuary of the St. Lawrence river, the Gulf of St. Lawrence, the Canadian Eastern Seabord, and at the Bellairs Research Institute at Barbados. The special research interests of the Centre include the physics of sea ice, the energy exchange

between the atmosphere and hydrosphere, marine climatology, the dynamics of estuaries, marine bacteria, growth and life cycles of marine organisms, marine productivity, marine biogeography and sedimentation.

Courses in the Physical Sciences are listed here; the whole list of courses offered (biological as well as physical) can be found in Section "B" of this *Announcement.*

E11.1 STAFF

Professors — M. J. DUNBAR *(Biology);* E. R. POUNDER *(Physics) (Vice-Chairman);* M. P. LANGLEBEN *(Physics);* J. B. LEWIS *(Director, Redpath Museum);* D. M. STEVEN *(Biology)*

Associate Professors — B. F. d'ANGLEJAN *(Chairman);* C. M. LALLI

Assistant Professors — R. G. INGRAM; F. SANDER

Lecturer — D. C. MACLELLAN

Research Assistant — SUSAN WOODS

Associate Members — M. E. GOLDSTEIN *(Biology);* ROGER KNOWLES *(Microbiology);* R. A. MACLEOD *(Microbiology);* E. W. MOUNTJOY *(Geology);* SVENN ORVIG *(Meteorology);* S. B. SAVAGE *(Civil Eng.)*

Honorary Professor (part-time) — G. LAROCHE

Honorary Research Fellow — PAUL MONTREUIL *(Director, Montreal Aquarium)*

E11.2 COURSES FOR HIGHER DEGREES

E11.2.1 ADVANCED UNDERGRADUATE COURSES

198-309A. DESCRIPTIVE OCEANOGRAPHY. (3 hours.) Major physical and chemical properties of sea water; methods of measurements, space and time distribution. The geostrophic approximation and the dynamic method. General features of the oceanic circulation.
PROFESSOR D'ANGLEJAN

198-319B. INTRODUCTION TO DYNAMICAL OCEANOGRAPHY. (3 hours.) Equations of motion. Geostrophy. Boundary layers. Horizontal wind-driven circulation. Waves and tides.
PROFESSOR INGRAM

E11.2.2 GRADUATE COURSES

395-660D. SEMINAR IN GENERAL OCEANOGRAPHY. (2 hours.) An advanced seminar course on research in salt water environments, with emphasis on contemporary work. Discussion of the original literature, recent advances and basic theory. STAFF

*395-695A. PHYSICS OF THE OCEAN. (3 hours.) General circulation of "Beta" plane. Wind and thermally driven flows. Two layer models. Boundary currents. PROFRESSOR INGRAM

*395-696B. SEMINAR COURSE IN PHYSICAL OCEANOGRAPHY. (2 hours.) Theoretical aspects of the general oceanic circulation. PROFESSOR INGRAM

395-697B. MARINE GEOLOGY AND GEOCHEMISTRY. (3 hours.) Recent studies relating to the geophysics of the ocean basins and the pelagic sedimentation. Geophysical observations and morphology of the oceans' basins. Geochemistry of pelagic deposits in relation to terrigenous sources, life processes and sea water composition. Deep sea stratigraphy; methods of correlation; the sedimentary record. PROFESSOR D'ANGLEJAN

*395-698B. TOPICS IN OCEANOGRAPHY. (3 hours.) Interdisciplinary studies of selected topics, including: waves and tides, estuaries, short and long term cycles, factors controlling the vertical distribution of organisms, particulate matter and sedimentation. STAFF

395-721D. RECENT SEDIMENTS AND MARINE GEOLOGY. (2 hours seminar, lectures and assignments.) Classical and recent research concerning principles of sedimentation, sedimentary environments including deltas, tidal flats, continental shelf and slope, geosynclines, ocean basins, submarine canyons, ocean currents, turbidity currents, sediment geochemistry, reefs, ocean structure. PROFESSORS D'ANGLEJAN AND MOUNTJOY

E 12 DEPARTMENT OF MATHEMATICS

E12.1 STAFF

Professors — E. ROSENTHALL *(Chairman);* M. BARR; I. CONNELL; C. HERZ; H. KAUFMAN; J. LAMBEK; W. MOSER; H. RUBEN; V. SESHADRI; H. SCHWERDTFEGER; C. SOLIN

Associate Professors — S. MELAMED *(Assistant Chairman);* W. BROWN; J. CHOKSI; C. COSTLEY; A. EVANS; K. GOWRISANKARAN; M. HERSCHORN; W. JONSSON; E. KOUNIAS; J. LABUTE; B. LAWRUK; A. MATHAI; S. NEGREPONTIS; T. OKUBO; B. RATTRAY; R. RIGELHOF; C. ROTH; N. SANCHO; D. SUSSMAN; K. TAM; J. TAYLOR; R. VERMES

Associate Professors (Visiting 1973-74) — J. BECK; S. BREITSPRECHER; B. RAMACHANDRAN

Assistant Professors — M. BUNGE; S. DRURY; D. GILDENHUYS; S. GROSSMAN; W. LANGFORD; S. MASLOWE; E. ROWLINSON; P. RUSSELL; G. SCHMIDT; G. STYAN; J. TROUÉ; J. TURNER; S. ZLOBEC

Assistant Professors (Visiting 1973-74) — W. ANDERSON; J. GOLAN; W. OLSON; T. PAPAIOANNOU

Research Visitors 1973-74 — C. AUDERSET; A. BOYARSKY; J. BROWN; T. CACOULLOS; P. CAHEN; I. FAROUQUI; H. HUNG; K. JANSSEN; H. LEUTWILER; C. MULVEY; H. SWIATAK

NOTE: A brochure "Information for Graduate Students in Mathematics" supplements the information contained in this *Announcement* and should be obtained from the Department.

E12.2 REQUIREMENTS

E12.2.1 MASTER'S DEGREES

Three distinct programs are offered. Students who follow the General program (recommended for those intending to continue for the Ph.D. degree) must pass three full courses in mathematics. A student must register in 189-472D, 189-481D and 189-483A unless he has previously taken the equivalent. In special cases 189-372D may be substituted for 189-472D. There are two applied programs designed for students intending to pursue a career in industry and business after obtaining the Master's degree. In the Applied Mathematics program, students are required to pass three (in some instances four) full courses in mathematics. The requirements in the Applied Statistics program are normally four full courses, at least three of which must be taken in the Department of Mathematics. Courses are chosen after consultation with members of staff. All three programs require participation in assigned seminars and submission of a thesis. The thesis need not be an original contribution to knowledge, but may be of an expository nature.

E12.2.2 Ph.D. DEGREE

To complete a Ph.D. program the student must: (a) pass six approved courses beyond the Bachelor's level; (b) pass a Comprehensive Examination consisting of a written Part A, which is concerned with his general mathematical background, and an oral Part B concerned with his specialties; (c) demonstrate facility in reading mathematical articles in English and French as well as one further language (e.g. German or Russian); (d) submit a thesis judged to be an original contribution to knowledge.

E12.3 COURSES

This Announcement is prepared early in the calendar year and will be modified by the time the academic year begins. An updated supplement is available at the Department Office and should be consulted. These changes will be important to a sensible choice of program.

NOTE: WITH THE CONSENT OF THE INSTRUCTOR, PREREQUISITES AND COREQUISITES FOR COURSES MAY BE WAIVED IN INDIVIDUAL CASES.

189-328B. COMPUTABILITY AND MATHEMATICAL LINGUISTICS. (3 Credits.) Propositional calculus, switching circuits, computability, recursive functions. Turing machines, automata, self-reproducing machines; formal and natural languages. Post canonical language, phrase structure and transformational grammars.

189-451A. COMPLEX ANALYSIS I. (3 Credits.) Maximum modulus theorem, Rouché's theorem, Weierstrass and Vitali's theorem on convergence of holomorphic functions. Normal families. Conformal mapping, harmonic functions. Entire and meromorphic functions.

189-452B. COMPLEX ANALYSIS II. (3 Credits.) Selected topics from the theory of a complex variable.

189-455D. FLUID DYNAMICS. (6 Credits.) Kinematics. Dynamics of general fluid. Inviscid fluids. Navier-Stokes equations. Exact solutions of the Navier-Stokes equations. Perturbation methods. Flow at small Reynolds number. Flow at high Reynolds number. Stability.

189-456D. MATHEMATICAL STATISTICS. (6 Credits.) Probability and distribution theory including discussion of some basic distributions in p-space. Regression and correlation theory. Laws of large numbers and central limit theorem. Sampling theory (including large-sample theory). Likelihood functions and information matrices. Hypothesis testing, estimation theory and decision theory. Distribution-free procedures.

189-461D. COMBINATORIAL MATHEMATICS. (6 Credits; *Prerequisites:* 189-246A, B, 189-242A or equivalent.) After a study of fundamentals (partitions and compositions, principle of inclusion and exclusion, etc.) students will be introduced to combinatorial aspects of several fields (graph theory, designs, set theory, group theory, geometry, number theory, etc.) from classical up to and including current research.

189-470A. OPTIMIZATION. (3 Credits; *Prerequisites:* 189-271D, 189-272D.) Classical calculus of variations, discrete dynamic programming (deterministic and stochastic), continuous processes of dynamic programming.

189-471D. DIFFERENTIAL GEOMETRY. (6 Credits; *Prerequisite:* 189-380D.) The geometry of differentiable manifolds.

189-472D. REAL AND COMPLEX ANALYSIS. (8 Credits; *Prerequisites:* 189-271D, 189-372D.) The theory of measure and integration, basic Hilbert and Banach space theory, complex analysis from a modern viewpoint.

189-474A. ORDINARY DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-374D.) Topics to be selected from the following: existence and uniqueness theorems, dependence of solutions on parameter and initial data, stability theory, perturbation methods, singular points, periodic systems, two point boundary-value problems.

189-475B. PARTIAL DIFFERENTIAL EQUATIONS. (3 Credits; *Prerequisite:* 189-374D.) A continuation of topics introduced in 189-374D.

189-478A. NUMERICAL ANALYSIS. (3 Credits; *Prerequisite:* 189-372D.) Basic error analysis; numerical solutions of non-linear equations by fixed point methods, interpolation, numerical integration and numerical solutions of ordinary differential equations.

189-479B. NUMERICAL ANALYSIS. (3 Credits; *Prerequisites:* 189-271D, 189-478A.) Numerical analysis in normed spaces. Finite and infinite systems of equations. Integral, ordinary and partial differential equations. Finite differences. Numerical realization of the Ritz-Galerkin methods. Convergence and stability of numerical algorithms.

189-481D. HIGHER ALGEBRA. (6 Credits.) The rudiments of category theory, including adjoint functors; noetherian, artinian and semi-simple rings, representations of finite groups; a continuation of commutative algebra, prime ideals, localisation and completion; some algebraic number theory and a deeper study of field extensions.

189-483A. TOPOLOGICAL SPACES. (3 Credits.) Bases, connectedness, convergence, product and quotient spaces, metrization, compactness, function spaces.

189-485A. METHODS OF APPLIED MATHEMATICS. I. (3 Credits.) Introduction to the theory of Hilbert spaces with applications to integral equations and integral transforms.

189-486B. METHODS OF APPLIED MATHEMATICS II. (3 Credits.) Partial differential equations with applications to initial and boundary value problems. Theory of distributions and Green's functions. Methods of solution by complex variables, eigenfunction expansions and transform methods.

189-487D. ADVANCED PROBABILITY THEORY. (6 Credits.) Distribution functions on R^1. Basic measure and integration theory, with special reference to probability measures on (R^1, β^1) and their correspondence with distribution functions. Random variables. Expectation, including basic inequalities. Independence. Conditional probability. Convergence concepts, laws of large numbers. Characteristic functions. Central limit theorem and its ramifications. Random walks.

189-488D. ALGEBRAIC TOPOLOGY. (6 Credits; *Prerequisite:* 189-380D.) Introduction to homology and homotopy.

189-489A. MATHEMATICAL LOGIC. (3 Credits.) Propositional calculus and first order predicate calculus; completeness, compactness, and normal form theorems; theorems of Herbrand, Craig, Beth and Gentzen.

189-490B. MATHEMATICAL LOGIC. (3 Credits.) In alternate years either (1) an introduction to recursion theory, undecidability theorems of Godel and Church, recursively enumerable sets, degrees; or (2) an introduction to model theory, ultraproducts, saturated models, elimination of quantifiers, decidability.

*189-630D. TENSORIAL OPERATORS AND APPLICATIONS. Tensor analysis. Algebra of tensorial sets and operators. Recoupling of triple and quadruple products. The Racah coefficients. Applications.

189-631D. ASYMPTOTIC APPROXIMATIONS AND PERTURBATION METHODS. Asymptotic series. Summation. Asymptotic estimation of integrals: Laplace method. Saddle point method. Asymptotic solutions of differential equations. Regular and singular perturbations.

*189-632D. MATHEMATICAL THEORY OF ELECTRICITY AND MAGNETISM.

*189-633D. MATHEMATICAL THEORY OF ELASTICITY. Analysis of stress and strain in linear and non-linear elasticity; stress-strain relations; fundamental equations; fundamental solutions; vibrations in elastic media; torsion and flexure; variational methods; plates and shells; stability of elastic systems.

189-634A. INFORMATION THEORY. Measures of information; channel models and coding theorems; noiseless coding; error-correcting codes; information sources; generalized measures of information and their characterization; applications.

189-635A. NUMERICAL ANALYSIS. Error analysis, fixed point theorem and roots of equations, interpolation and numerical integration. Solution of initial value problem in differential equations.

189-636B. NUMERICAL ANALYSIS. Inversion of matrices and eigenvalue problems, partial differential equations, linear programming.

189-640D. ADVANCED THEORY OF GROUPS. Semigroups. Isomorphism. Isomorphism theorems. Jordan-Hoelder-Schreier theorem. Krull-Schmidt theorem. Topics selected from the following; abelian groups, solvable and nilpotent groups. Free groups. Matrix representation of linear algebras, groups and the theory of group characters. Additional topics to suit the class.

*189-650D. CALCULUS OF VARIATIONS. The first variation and the Eulerian characteristic equation, the second variation, Legendre's test and the theory of conjugate points; isoperimetrical problems; integrals with variable end points and Hilbert's integrals. Strong variations and the Weierstrassian E function. Hamilton's principle and the principle of least action.

*189-651D. FOURIER TRANSFORMS. Fourier, Laplace and Mellin transforms, applications to probability; generalized Fourier transforms, Watson and Bochner transforms; integral and dual integral equations.

189-652D. FUNCTIONAL ANALYSIS. Linear operators on Hilbert and Banach spaces, results in special spaces. Riesz representation theorem, spectral theory.

189-653A. ORDINARY DIFFERENTIAL EQUATIONS. Existence and uniqueness theorems; approximation methods, systems of equations; boundary and eigenvalue problems; stability theory.

189-654D. PARTIAL DIFFERENTIAL EQUATIONS. Study of equations of elliptic, parabolic, and hyperbolic type; singular solutions, Green's function; application of Fourier series and integrals; variational methods.

189-655D. SPECIAL FUNCTIONS.

189-656A. FOURIER SERIES AND APPROXIMATION. Approximation in function spaces; orthogonal sets of functions and general Fourier series; orthogonal polynomials; trigonometrical Fourier series; almost periodic functions.

189-657B. INTRODUCTION TO INTEGRAL EQUATIONS. Résumé of finite dimensional linear algebra; types of linear integral equations; Hilbert's theory; Schmidt's theory of the symmetric kernel; applications to boundary value problems of linear differential equations and to almost periodic functions.

189-658B. INTEGRATION IN LOCALLY COMPACT SPACES. Radon measures, and Riesz representation theorem.

189-659A. TOPOLOGICAL VECTOR SPACES. Basic properties of locally convex spaces. Hahn-Banach theorem.

189-660B. DIFFERENTIAL GEOMETRY. Smooth maps on open subsets of R^n, implicit function theorem, submanifolds of R^n. Metric invariants of curves. Induced metric and affine connection on submanifolds of R^n. Relative properties of surfaces. Differentiable manifolds and maps, tangent spaces, tensors and differential forms. Riemann metrics and affine connections.

189-663B. SPECIAL TOPICS IN DIFFERENTIAL EQUATIONS.

189-670A. RANDOM PROCESSES. Basic concepts, stationary and nonstationary processes, correlation functions, power spectra, linear systems, mean square periodicity and Fourier series, sampling theorems, series expansions, linear mean square estimation.

189-671A. APPLICATIONS OF STOCHASTIC PROCESSES. Discrete parameter Markov chains, including branching processes and simple random walks. Limit theorems and ergodic properties of Markov chains. Continuous parameter Markov chains, including the general birth and death process. Selected topics from the following areas: renewal processes, queueing theory, Brownian motion, storage and inventory, statistical inference for stochastic processes.

*189-672A. ESTIMATION. The theory of point and set estimation of parameters in statistical models. This includes Bayesian and decision-theoretic approaches.

*189-673B. TESTS OF HYPOTHESES. A systematic study of the modern theory of testing statistical hypotheses, with applications.

189-674A. EXPERIMENTAL DESIGN. Galois fields, finite projective and Euclidean geometries. Balanced incomplete block designs. Latin squares and orthogonal arrays. Partially balanced incomplete block designs, construction, various association schemes, self-dual designs. Partially balanced incomplete block designs with two associate classes, group-divisible designs, triangular association schemes.

189-675A. NONPARAMETRIC STATISTICS. Theoretical aspects of order statistics: distributions, moments, product moments. Tests based on the sample distribution function; statistics of the Kolmogorov-Smirnov type. Applied aspects of various nonparametric tests: description, illustration, theoretical justification, comparisons.

189-676B. MULTIVARIATE ANALYSIS. Properties of the multivariate normal distribution. Central and noncentral Wishart distribution. Statistical inference for multivariate normal populations. Hotelling's T^2. The product-moment correlation coefficient. Canonical correlations. Multivariate linear models. Principal components. Factor analysis.

*189-677D. DECISION THEORY. Formulation of the statistical decision problem. Bayes and minimax solutions. Hypothesis testing and estimation from the point of view of decision theory. Sequential analysis.

189-678A. ADVANCED STATISTICAL METHODS I. Statistical data analysis, with special reference to applications of the main statistical methods to problems in medicine, biology, chemistry, etc. Extensive use of computer methods, especially subroutine packages for statistical data description, display, and analysis.

189-679B. ADVANCED STATISTICAL METHODS II. Continuation of 189-678A.

189-683B. LINEAR MODELS. General univariate linear models with full rank and with less than full rank. Best linear unbiased estimators. General linear hypothesis. Computational procedures. Weighted least squares. Analysis of variance with equal and unequal numbers in cells. Latin squares, complete factorial designs. Prediction and confidence bands, multiple comparisons. Random effects models.

Graduate Seminars.

189-702D, 189-703D, 189-704D, 189-705D, 189-706D, 189-707D, 189-708D, 189-709D, 189-710D, 189-711D, 189-712D, 189-713D, 189-714D, 189-715D, 189-716D, 189-717D, 189-718D, 189-719D, 189-720D, 189-721D.

Areas of mathematics and topics will be selected to suit the needs of the students and will be given by various members of the staff.

189-740B. READING COURSE IN ALGEBRA. A study of some advanced textbook or selection of papers under the direction of members of the Department.

189-741D. RINGS. Rings and modules; the Artin-Wedderburn structure theorem; the radical; central simple algebras and the Brauer group; multiplicative ideal theory. Additional topics to suit the class.

189-742D. HOMOLOGICAL ALGEBRA. Modules; diagrams; free, injective, projective and flat modules; the tensor product; the Hom-functor; derived functors, dimension theory; local rings; cohomology of groups.

189-743D. THEORY OF CATEGORIES. Categories, functors, natural transformations. Adjoint functors and limits. Embedding and completions. Algebraic categories and standard constructions. Abelian and homological categories. Categories and the foundations of mathematics.

189-744D. ANALYTIC NUMBER THEORY. Arithmetical functions, elementary theory of the distribution of primes; proof of the prime number theorem, Dirichlet's theorem on number of primes in arithmetic progression; asymptotic and convergent formulas for the partitions of n.

189-745D. ALGEBRAIC NUMBER. Topics selected from the following: integral closure; unique factorization domains; Dedekind domains; valuation theory; completion and local fields; ramification and the different; cyclotomic fields and explicit reciprocity laws, the theory of units, adeles and ideles.

189-746A, B. LIE GROUPS AND ALGEBRAS. Representation of linear groups and their Lie algebras. Commutative, nilpotent and solvable ideals of Lie algebras. Classification of classical simple Lie groups by means of Cartan's sub-algebras. Weights of irreducible representation and structure of semi-simple Lie algebras.

189-750D. READING COURSE IN ANALYSIS. A study of some advanced textbook or selection of papers under the direction of members of the Department.

189-751D. ABSTRACT HARMONIC ANALYSIS. Integration on locally compact groups, abstract Fourier analysis.

189-752D. FUNCTION ALGEBRAS.

189-753D. RINGS OF CONTINUOUS FUNCTIONS. Ring C(X) of continuous real-valued functions on a space X. Ideals of C(X). Compact spaces, Stone-Cech compactification. Order properties of the residue class fields and real compact spaces. The Katetov-Shirota theorem. Stone-Cech compactification of the discrete space of positive integers. Topics on ultrafilters.

189-754B. INTRODUCTION TO DISTRIBUTIONS. Test functions, generalized functions, application to partial differential equations.

189-760D. READING COURSE IN GEOMETRY AND TOPOLOGY. A study of some advanced textbook or selection of papers under the direction of members of the Department.

189-761D. TOPICS IN GEOMETRY. Selected topics.

189-762D. ALGEBRAIC GEOMETRY. Affine and projective varieties. Rational functions on a variety. Multiplicity for zero-dimensional intersections. Bezout's theorem in the projective plane. Birational and biregular correspondences. Geometry on a plane curve and the Riemann-Roch theorem.

189-763D. THEORY OF SHEAVES. A study of sheaf theory and its application to other branches of mathematics. Topics included are: the cohomology of sheaves, Cech singular cohomology, spectral sequences, duality theorems.

189-771A. THEORY OF STOCHASTIC PROCESSES. Kolmogorov-Daniell existence theorem for stochastic processes. Separable and measurable stochastic processes. Stopping times. The Brownian motion and Poisson processes, and their properties. Martingales and the principal martingale convergence theorems. Probability measures on metric spaces. Donsker's central limit theorem.

189-772B. TOPICS IN STOCHASTIC PROCESSES. Selected topics from one or more of the following areas: Markov chains, general theory of Markov processes, diffusion processes and stochastic integral equations, stationary processes, processes with independent increments, random fields.

*189-773D. THEORY OF GAMES. The minimax theorem of Von Neumann. Finite games and solutions — simple two person games — discrete and finite symmetric games. Isomorphism of games and symmetric equivalence. Reduction of game matrices. Infinite games. Minimax principle by the theory of operators, elements of linear programming.

E 13 DEPARTMENT OF MECHANICAL ENGINEERING

Advanced courses and laboratory facilities are offered for graduate study leading to the Diploma in Mechanical Engineering, to the M.Eng. and the Ph.D. degrees in Mechanical Engineering, or to the M.Sc. degree in Fluid Mechanics.

Graduate studies and research are at present being conducted in the fields of fluid mechanics, mechanics of solids, aerodynamics, heat transfer, gasdynamics; aeroballistics, mechanical design; hydroelasticity. Current problems deal with such matters as high temperature measurements, air intakes at hypersonic speeds; reactive turbulent free-mixing flow; mixing and supersonic combustion; imploding gaseous detonation; shock stability and attenuation; supersonic aerodynamics; shock boundary layer interactions; fluidic and other control systems; pressure, temperature; turbulence phenomena; jets and wakes; wall jets in subsonic flow; coanda effect; boundary layer control; heat transfer characteristics of flat plates, finned surfaces, two-phase systems; free and forced convection; friction and wear; materials at high rates of strain; viscoelastic behaviour of materials; micro-mechanics of solids, stress holography, advanced continuum mechanics; flow-induced vibration, hydroelastic stability, random vibration of shells; chemical and electrical methods of machining; mechanical properties of fibrous media.

Facilities include wind tunnels, water tunnel, a high enthalpy jet, shock chambers and tubes, and high temperature chambers for testing materials. The laboratories are equipped with advanced instrumentation including X-ray equipment, lasers, hot-wire anemometers and a data acquisition and control computer with remote-access terminals.

E13.1 STAFF

Professors — J. W. STACHIEWICZ *(Chairman);* D. R. AXELRAD; W. BRUCE; B. G. NEWMAN

Associate Professors — G. G. BACH; J. C. CHERNA; P. V. COVO; G. FEKETE; J. M. FORDE; R. KNYSTAUTAS; L. KOPS; J. H. S. LEE; C. L. MURPHY; M. P. PAIDOUSSIS; D. PFEIFFER; J. W. PROVAN; A. L. THOMPSON; J. H. T. WU; P. J. ZSOMBOR-MURRAY

Assistant Professors — A. M. AHMED; CHRISTIANNE GUIRAO; R. HOFFMAN; F. J. ZWARTS

Lecturers — From Industry

Associate Member — L. C. JAEGER

Honorary Lecturer — D. ATACK

Research Associates — T. D. BUI; G. V. BULL; J. A. H. GRAHAM; H. J. LUCKERT

Research Assistant — V. FANGOR

E13.2 REQUIREMENTS

E13.2.1 ADMISSION

The general rules of the Faculty apply. Candidates who come from other institutions are expected to have an academic background equivalent to the undergraduate curriculum in mechanical engineering at McGill or to make up any deficiencies in a qualifying year. The minimum academic standard for admission is normally a high second class standing. Applicants are requested to state in as much detail as possible their particular field of interest for graduate study.

E13.2.2 REQUIREMENTS FOR THE M.Eng. DEGREE

The Department is currently revising its graduate course offerings with the view to introducing, in addition to the present thesis-type degree, a non-research M.Eng. degree option, consisting of a heavier course load with a design project or additional course-work replacing the thesis. This means that in 1973/74 there will be changes and additions to the present course list.

Students interested in the non-research M.Eng. degree are advised to indicate this in their letters of inquiry, and to get in touch with Prof. J. W. Provan (Tel. 392-5874), Department of Mechanical Engineering, concerning details of departmental course offerings.

The requirements for the research thesis option remain unchanged and are as follows:

Students are required to take course 305-604B, together with the other courses that are necessary for progress in their selected field of research. Normally other courses are required and are selected in consultation with the candidate's director of research. Selections are made from those listed below, from courses offered by other engineering departments or from cognate courses given in other faculties. All qualified students are accepted tentatively pending their performance in this course work. Their registration is confirmed at the end of the second semester. A thesis describing the candidate's research is to be submitted in accordance with the rules of the Faculty and is the major requirement for the degree.

E13.2.3 REQUIREMENTS FOR THE M.Sc. DEGREE IN FLUID MECHANICS

This degree is offered to enable holders of a Bachelor's degree (honours level) in mathematics or science to undertake research in fluid mechanics along engineering lines. The minimum academic standard for admission is normally a high second class standing. Courses are selected in consultation with the candidate's director of research. A thesis is to be submitted in accordance with the rules of the Faculty and is the major requirement for the degree.

E13.2.4 REQUIREMENTS FOR THE Ph.D. DEGREE

Candidates normally register for the M.Eng. degree in the first instance. However in exceptional cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Eng. degree has been completed at another university, candidates may be permitted to proceed directly to the Ph.D. degree without submitting a master's thesis, as long as they have satisfied the course requirements for the M.Eng. degree. Courses of study selected for a Ph.D. program will depend upon the existing academic qualifications of the candidate and those needs for effective prosecution of research. Candidates are encouraged to undertake an additional course of study of their own choice and of two years duration in some field of the humanities or in one of the sciences not directly related to their research. Candidates are required to pass a preliminary oral examination within about 6 months of their initial registration for the Ph.D. degree.

E13.3 COURSES FOR HIGHER DEGREES

The graduate courses in Mechanical Engineering are currently under review and additional courses will be available for the '73-'74 session, as indicated in E13.2.2. Candidates should consult Dr. D. R. Axelrad for details. Appropriate courses offered by other departments may also be taken for credit.

305-604B. SEMINAR. All candidates for higher degrees are required to participate and to deliver one paper dealing with their particular research for each higher degree.

305-607A. NUMERICAL ANALYSIS FOR COMPUTER USERS. I. Various topics from numerical analysis are selected with an eye to computer usage. Review of finite differences, interpolation and quadrature, ordinary differential equations. PROFESSOR BACH

305-607B. NUMERICAL ANALYSIS FOR COMPUTER USERS. II. *(Prerequisite:* 305-607A.) Partial differential equations, matrices, Monte-Carlo methods, linear programming and statistics. PROFESSOR BACH

305-611D. ADVANCED STRESS ANALYSIS FOR ENGINEERS. (2 hours.) Small displacement theory of elasticity. Variational principles. Finite strains. Strain energy function. Principle of potential energy. Thermal stresses. Deformation and flow theory of plasticity. Response characteristics of linear viscoelastic materials. Some dynamic problems. PROFESSOR AXELRAD

305-619D. GAS TURBINES. (2 hours; *Text:* Sorensen, *Gas Turbines:* Ronald Press.) Introduction to the general theory of gas turbines and their major components, compressors, turbines, combustion chambers and heat exchangers. Special study is made of the problems of performance and control.

305-621B. FUNDAMENTALS OF MACHINING. (2 hours.) Metal behaviour under cutting conditions. Mechanics of metal cutting. Chip formation. Forces in cutting. Measurements of cutting forces and cutting power. Thermal aspects of cutting. Heat generation and temperature distribution. Cutting temperature measurements. Tool wear and tool life. Factors influencing the tool life. Methods of tool life measurements. Economical aspects of tool life. Machine tool and cutting tool relationships. Abrasive machining. Electro discharge and electro chemical machining. PROFESSOR KOPS

*305-622A. COMBUSTION. (1 hour; *Prerequisite:* Kinetic Theory and Chemical Kinetics 444 or equivalent.) Ignition delay, flame speed and stability, scale effects, and experimental techniques in the combustion of gases, liquids and solids. PROFESSOR THOMPSON

305-624D. DESIGN OF HEAT TRANSFER EQUIPMENT. The design of heat transfer equipment with special attention to the design of shell-and-tube heat exchangers, coolers, heaters, condensers; also, the design of air and gas heat exchangers for gas turbines. The main stress will be on the thermal aspects of the design but mechanical features will also be discussed. PROFESSOR STACHIEWICZ

305-634D. HIGH-SPEED AERODYNAMICS. II. (2 hours lectures, 3 hours problems or laboratory; *Text:* Shapiro, *The Dynamics and Thermodynamics of Compressible Fluid Flow,* Vol. II: Ronald.) Three-dimensional compressible fluid flow, one-dimensional unsteady flow, real gas flow with viscosity and heat conductivity, combustion gasdynamics, magnetogasdynamics, research topics in high-speed aerodynamics. PROFESSOR WU

305-636D. ADVANCED FLUID DYNAMICS. (2 hours.) Navier-Stokes equations and limiting forms, exact solutions. Irrotational potential flow. Acoustic waves and waves of finite amplitudes. Steady and unsteady compressible flow. Boundary layer theory. Hydrodynamic stability and onset of turbulence. Fully developed turbulent flow. PROFESSOR ZWARTS

*305-638D. AIRCRAFT PERFORMANCE, STABILITY AND CONTROL. (2 hours.) Performance, power and thrust requirements for level flight, rate of climb, endurance, range, takeoff and landing. Static longitudinal and directional stability. Neutral points and manoeuvre margin under stick fixed and stick free conditions. Dynamic stability. Aerodynamic derivations. Classification of flying qualities.

*305-705D. APPLIED MATHEMATICS. (2 hours; *Text:* L. A. Pipes, *Applied Mathematics for Engineers and Physicists,* 2nd edition: McGraw-Hill.) Beginning with a review of differential equations the course develops these mathematical techniques essential for the treatment of problems in vibration, elasticity, heat flow, etc. which are of particular interest to mechanical engineers.

305-706D. APPLICATIONS OF ADVANCED MATHEMATICS FOR ENGINEERING DESIGN. (*Text:* Irving and Mullineux, *Mathematics in Physics and Engineering:* Academic Press.) Applications of Fourier series and transforms, vector and tensor analysis, partial differential equations, and approximate methods to problems in stress analysis, fluid dynamics, heat transfer, chemical diffusion, and vibration; elementary numerical analysis. PROFESSOR PROVAN

*305-709D. SYSTEMS DYNAMICS. (2 hours.) Characteristics of linear and non-linear mechanical systems. Thermodynamics of mechanical networks. Characterization of material properties. The thermodynamic impedance function: Problems in the dynamics of elastic and viscoelastic systems. PROFESSOR AXELRAD

305-710D. CONTINUUM MECHANICS. (2 hours.) Cauchy stress concept. Kinematics of deformation. Deformation gradients. Thermomechanical and general principles. Entropy as a functional in continuum mechanics. Constitutive theory. Linearized theory of elasticity. Navier's displacement equations. Thermoelastic theory. Wave propagation. PROFESSOR AXELRAD

305-712D. MICRO-MECHANICS OF SOLIDS. (2 hours.) Statistical foundations of micro-systems. Equilibrium states. Quasi-static processes. Dislocation theory and the plastic flow of solids. Irreversible thermodynamics of micro-systems. Thermodynamics of surface phenomena in solids. Deformation and stress. Constitutive equations of heterogeneous media. Theory of mechanical behaviour of heterogeneous media. PROFESSOR AXELRAD

305-715D. MECHANICS OF VIBRATIONS. (2 hours; *Text:* L. Meirovitch, *Analytical Methods in Vibrations:* Macmillan.) Lagrangian dynamics and Hamilton's principle. Rigid-body dynamics. Multiple degree of freedom systems and lumped parameter approximation for distributed systems; general matrix solutions for conservative and non-conservative systems; numerical methods. Introduction to functions of matrices. Transfer matrices with application to shaft and

beam vibrations. Distributed parameter systems; vibration of uniform and non-uniform shafts and beams. Flow induced oscillations. Introduction to random vibration.
PROFESSOR PAIDOUSSIS

305-716D. DYNAMICS. (2 hours.) Variational methods in mechanics. Equivalence of Hamiltonian, Lagrangian and Newtonian methods. Extremum principles and Hamiltonian dynamics; Routh's procedure. Phase-space and Liouville's theorem. Rigid-body dynamics, Lagrangian method; application of tensorial methods. Transition from discrete to continuous systems; the wave equation; classical solutions of discrete and continuous systems. Stability; classification of systems, phase-space analysis; Liapunov's methods, Liapunov's stability analysis for linear, time-invariant systems, the Routh-Hurwitz criteria. PROFESSOR PAIDOUSSIS

305-720D. HEAT TRANSFER. (2 hours.) A study of more advanced topics in steady and transient heat flow by conduction, convection and radiation. New developments in heat transfer theory and techniques. PROFESSOR STACHIEWICZ

305-721D. SELECTED TOPICS IN MACHINING PROCESSES. (2 hours; *Prerequisite:* 305-272A.) A study of more advanced topics in metal cutting, abrasive processes and unconventional methods of machining. New trends and developments in material removal theory and techniques. PROFESSOR KOPS

*305-730D. AERODYNAMICS: IDEAL FLUID THEORY. (2 hours; *Text:* Glauert, *Aerofoil and Airscrew Theory:* Cambridge University Press.)
Fundamentals — Kinematics; equations of motion, vorticity and circulation; solution of Laplace's equation; conformal mapping; steady and unsteady motion round simple bodies.
Application — Two-dimensional aerofoils; airscrews and ducted fans; low and high aspect ratio wings; wind tunnel interference. The course will be supplemented by demonstration and experiment in the laboratory, and by the use of machine computation.
PROFESSOR NEWMAN

305-731D. AERODYNAMICS: VISCOUS FLOW AND BOUNDARY-LAYER THEORY (2 hours; *Text:* Schlichting, *Boundary-Layer Theory:* Pergamon Press.) Navier-Stokes equations; exact solutions for laminar incompressible flow; laminar boundary-layer theory, exact and approximate methods; transition; turbulent boundary-layer theory, laws of wall and wake, approximate methods; extension to compressible flows; practical considerations including boundary-layer control, aerodynamic heating, shock-wave boundary-layer interaction and methods of measurement. The course will be supplemented by demonstration and experiment in the laboratory.
PROFESSOR NEWMAN

305-732D. HIGH-SPEED AERODYNAMICS. I. (2 hours lectures, 3 hours problems or laboratory; *Text:* Shapiro, *The Dynamics and Thermodynamics of Compressible Fluid Flow.* Vol. I: Ronald.) One-dimensional compressible fluid flow, normal and oblique shock waves, method of characteristics, supersonic nozzles and diffusers, supersonic airfoils, shock-wave boundary-layer interactions, experimental methods. PROFESSOR WU

305-733D. HYPERSONICS AND HIGH TEMPERATURE GAS FLOWS. (2 hours lectures; *Texts:* W. H. Dorrace, *Viscous Hypersonic Flows:* McGraw-Hill; G. G. Chernyi, *Introduction to Hypersonic Flow:* Academic Press.) Characteristics, assumptions and limitations; Mach number and temperature effects; shock waves, expansions; small disturbance theory; similarity; blast wave analogy; Newtonian flow; method of characteristics for real non-equilibrium flow; one-dimensional non-stationary flow; testing techniques; statistical thermodynamics; chemical kinetics; ideal dissociating gas; non-equilibrium flow; perturbation theory; nozzle flow; boundary layers. PROFESSOR MOLDER

305-735D. GASDYNAMICS. (2 hours.) Thermodynamic concepts; basic conservation equations; acoustic theory; waves of finite amplitude; gasdynamic theory of shocks, deflagrations, and detonations; self-similar solutions; cylindrical and spherical flow; method of characteristics; wave interactions; blast waves; shock tube flow; chemical reacting flow; thermal flame theory; diffusion flames; hydrodynamic stability of flames; formation, structure and stability of gaseous detonations. PROFESSOR LEE

*305-750D. MATHEMATICAL METHODS IN CONTINUUM MECHANICS. (2 hours.) Vector and tensor field theory, mechanical and electromagnetic stress tensors, general equations of motion for a continuous medium, analytical and numerical methods in the solution of problems in gasdynamics and solid mechanics. PROFESSORS BACH AND LEE

*305-751D. MAGNETOGASDYNAMICS. (2 hours.) Electromagnetic field theory, particle motions in an electromagnetic field, tensor properties of electrical conductivity of plasmas, classical solutions in magnetohydrodynamic channel flow, one-dimensional magnetogasdynamics, magnetogasdynamic shock waves, heat transfer in a plasma, topics in plasma propulsion and MHD power generation. PROFESSORS BACH AND LEE

*305-752D. AN INTRODUCTION TO PLASMAS. Charged particle motions in electric and magnetic fields, particle collisions, electromagnetics, basic plasma concepts, plasma properties based on average particle model, generalized Ohm's Law, kinetic description of a plasma including the Boltzmann and Fokker-Planck equations, waves in plasmas, applications to thermonuclear fusion, communications, propulsion and space exploration.

E 14 DEPARTMENT OF METEOROLOGY

E14.1 STAFF

Professors — SVENN ORVIG *(Chairman);* R. H. DOUGLAS *(Professor of Agricultural Physics);* W. F. HITSCHFELD; J. S. MARSHALL

Associate Professors — J. F. DEROME; P. E. MERILEES; R. R. ROGERS; E. VOWINCKEL

Assistant Professors — D. E. DIETRICH; H. G. LEIGHTON

Teaching Fellow — D. ROBERTSON

E14.2 REQUIREMENTS

M.Sc. candidates can enter with a bachelor's degree with honours in Physics or Mathematics and Physics, or a bachelor's degree in Engineering Physics, but in any case only with standing acceptable to the Department. The program then consists of courses 195-651D to 195-656D, and culminates in research towards a thesis. Research in normally started after the spring examinations of the first session; it *can* be completed by the autumn, but typically will require a full year, till the end of the second session. Candidates entering with a bachelor's degree with honours in Meteorology can replace some of these courses by instruction in seminar, and can commence their research without delay. Candidates with some postgraduate training or experience in Meteorology may receive credit for this.

Students with a Master's degree in meteorology or equivalent qualification, again with standing acceptable to the Department, may register for the Ph.D. degree. The ordinary requirements concerning thesis and preliminary examination will apply. The work consists principally of research with one of McGill's research groups, the Arctic Meteorology Group active in dynamic and synoptic meteorology and climatology, and the Stormy Weather Group in physical meteorology, especially precipitation physics. The candidate will be required to attend research seminars and to take a small number of courses, in this or other departments, appropriate to him.

E14.3 COURSES FOR HIGHER DEGREES

195-651D. PHYSICAL METEOROLOGY. (2 hours; *Texts* — Mason, *Physics of clouds:* Oxford; Kondratyev, *Radiative heat exchange in the atmosphere:* Pergamon.) Thermodynamics of the atmosphere. Instability and convection. Cloud physics and storm structure. Radar applications. Solar and terrestrial radiation. Radiation calculations and diagrams. Energy budget of the atmosphere. PROFESSORS HITSCHFELD, ROGERS AND LEIGHTON

195-652D. DYNAMIC AND NUMERICAL METEOROLOGY. (2 hours; *Texts* — Haltiner, *Numerical Weather Prediction:* Wiley; Holton, *An Introduction to Dynamic Meteorology:* Academic Press.) The equations of motion. Circulation and vorticity, development theorems. Linear perturbations, instability. Mathematical models of the atmosphere; application of difference equations and their numerical solution. PROFESSORS DEROME AND DIETRICH

195-653D. CLIMATOLOGY. (1 hour; *Texts* — Sellers. *Physical Climatology:* Un. of Chicago; Critchfield, *General Climatology:* Prentice-Hall.) The general circulation of the atmosphere and the ocean. Climatic classification. The heat and water balance, climatic change. PROFESSOR ORVIG

195-654D. SYNOPTIC METEOROLOGY. (4 hours.) A laboratory course to complement Meteorology 195-651D to 195-653D. Analysis of weather charts and diagrams, forecast techniques, diagnostic treatment of atmospheric dynamics and weather processes. Modern statistical and computer methods are used wherever suitable. PROFESSOR VOWINCKEL AND STAFF

195-655D. SEMINARS "TOPICS IN METEOROLOGY." (1 hour.) One-hour discussions on special topics in meteorology, e.g. hurricanes; tornadoes; charge generation; ozone. STAFF

195-656D. DAILY WEATHER DISCUSSION. (2½ hours.) One-half hour briefing on the current weather situation. PROFESSOR VOWINCKEL

195-700D. Ph.D. COMPREHENSIVE (Cognate Subjects.)

195-701D. Ph.D. COMPREHENSIVE (General.)

195-751D. SEMINAR IN PHYSICAL METEOROLOGY. (2 hours.) A research seminar in topics in atmosphere physics. PROFESSORS MARSHALL AND ROGERS

195-752D. THE GENERAL CIRCULATION OF THE ATMOSPHERE. (2 hours.) A research seminar on theoretical and numerical aspects of current general-circulation studies. PROFESSORS DIETRICH AND DEROME

195-753D. SEMINAR IN CLIMATOLOGY. (2 hours.) A research seminar in topics from synoptic and physical climatology. PROFESSORS VOWINCKEL AND ORVIG

E15 DEPARTMENT OF MINING AND METALLURGICAL ENGINEERING

Graduate programs leading to the M.Eng., M.Sc. and Ph.D. degrees are available for research in Rock Mechanics, Mining Environments, Mineral Economics, Materials Handling, Applied Geophysics, Electrochemistry, Chemical and Process Metallurgy, Mineral Dressing and related Surface Chemistry, Physical and Mechanical Metallurgy. Course programs leading to the M.Eng. (Min.) degree and the Diploma in Mining Engineering are also available.

Special programs are available for those holding degrees in subjects other than Metallurgy or Mining, e.g. Chemistry, Physics, Engineering, Geology, etc.

E15.1 STAFF

Professors — W. M. WILLIAMS *(Chairman)*; T. SALMAN

Associate Professors — C. A. BEASLEY; W. G. DAVENPORT; J. E. GRUZLESKI; R. I. L. GUTHRIE; J. J. JONAS; B. W. MACKENZIE; G. W. SMITH; W. M. TELFORD; J. E. UDD

Assistant Professors — P. A. DISTIN; O. T. DJAMGOUZ; O. G. JENSEN; C. C. KU; W. T. THOMPSON

Lecturers — J. A. FINCH; W-t. YEN

Special Lecturers — R. S. BOIRE; J.-P. DROLET; T. E. HAWKINS

Senior Demonstrator — M. FIRTH

E15.2 REQUIREMENTS

E15.2.1 REQUIREMENTS FOR THE M.Eng. AND M.Sc. DEGREES

The M.Eng. degree is open to graduates holding the B.Eng. degree or its equivalent in Metallurgical Engineering, Mining Engineering, Geophysics or related fields. The M.Sc. degree is open to graduates holding the B.Sc. degree or its equivalent in Metallurgy, Geophysics, Geology or related fields. In both cases, at least a high second class standing at the undergraduate level is required.

A candidate must pass courses assigned by the Department. These will be selected from courses offered by the Department and cognate courses given by other departments. The selection will be based upon a consideration of the student's previous training and research interests.

A candidate will be required to participate in an appropriate Research Seminar course.

A candidate must submit an acceptable thesis based upon research successfully completed by the candidate.

E15.2.2 REQUIREMENTS FOR THE GRADUATE DIPLOMA IN MINING ENGINEERING

This Diploma is open to graduates of suitable standing in any branch of engineering or applied science. The Department provides a course of study during the academic year: this is normally followed by five months of approved experience within the mining industry. Candidates will be required to take an integrated group of courses, selected in consultation with the Department and bearing in mind their previous academic training.

E15.2.3 REQUIREMENTS FOR THE M.Eng. (Mining) DEGREE

The first year of the program involves four months approved experience within the mining industry, followed by eight months of academic study at McGill University. The academic program has been designed to advance diversely-trained graduates to a uniform level of postgraduate academic proficiency within the Mining Engineering discipline and to provide them with the important concepts and analytical techniques necessary for a more problem-oriented second year. The second year provides a sequence of advanced courses, detailed below, together with a dissertation which is handled as an individual research project throughout the academic year. The course work is supplemented by a second four month period of approved experience within the mining industry.

The courses required in the second year are:

307-610D. MINING ENVIRONMENTS.
307-611D. GROUND CONTROL AND FRAGMENTATION.
307-612D. MATERIALS HANDLING IN MINES.
307-616D. MINERAL INDUSTRY ECONOMICS.
307-621D. HUMAN RELATIONS IN THE MINERAL INDUSTRY.
307-622D. MANAGEMENT-LABOUR RELATIONS.
307-628D. DISSERTATION.

E15.2.4 REQUIREMENTS FOR THE Ph.D. DEGREE

A candidate for this degree must normally hold an acceptable Master's degree in Metallurgy, Metallurgical Engineering, Mining Engineering, Geophysics, or a related field. The Ph.D. degree will be awarded in the appropriate field.

A candidate must pass courses assigned by the Department. These will be selected on the basis of the student's previous training and research interests.

A candidate will be required to participate in an appropriate Research Seminar course.

Candidates are expected to take a preliminary examination within the first year of their Ph.D. registration.

A candidate must submit an acceptable thesis based upon research successfully completed by the candidate and must satisfy the examiners in an oral examination on the thesis and related topics.

A candidate must also satisfy general faculty regulations relating to Ph.D. degrees.

E15.3 COURSES FOR HIGHER DEGREES

E15.3.1 COURSES IN METALLURGICAL ENGINEERING

306-603D. TRANSPORT PHENOMENA IN PROCESS ENGINEERING METALLURGY. (2 hours.) Theoretical studies of selected processes for the smelting and refining of metals. Metallurgical applications of heat, mass and momentum transfer theories

PROFESSORS DAVENPORT AND GUTHRIE

306-604D. TOPICS IN CHEMICAL METALLURGY. (2 hours.) Applications of physical chemistry to extractive metallurgy with emphasis on thermodynamics and electrochemistry; recent developments in extractive metallurgical research. PROFESSOR THOMPSON

306-612D. APPLIED X-RAYS. (4 hours.) X-Ray diffraction methods and their application to chemical analysis, alloying, grain size determination, preferred orientations, deformation annealing and single crystal studies; fluorescence analysis; introduction to radiography and micro-radiography; electron probe micro-analysis. PROFESSOR SMITH

306-613B. ADVANCED METALLURGICAL DESIGN. (3 hours.) A discussion and laboratory course, supplemented by detailed written reports, dealing with metallurgical design problems. Special attention will be given to problems in corrosion, weld design, casting, prevention of metal fatigue, heat effects and materials selection. PROFESSOR WILLIAMS

306-615A. CRYSTAL GROWTH AND SOLIDIFICATION OF METALS. (3 hours.) The kinetics of freezing and the structure of the solid-liquid interface. Methods of single crystal growth; growth imperfections in single crystals. Dendritic freezing in pure materials. Alloy freezing and the redistribution of solute; morphological stability during freezing. Eutectic freezing with particular reference to cast irons. PROFESSOR GRUZLESKI

306-620A. DEFECT STRUCTURE AND MECHANICAL PROPERTIES OF METALS. (3 hours.) Elastic compliances and rigidities; stress and strain deviators; yield criteria; vacancies and diffusion; topology of dislocations and stacking faults; self-energy of dislocations; dislocation interactions with point, line and surface defects; plastic deformation of single crystals and poly-crystals; work hardening and recovery processes. PROFESSOR JONAS

306-621B. THERMAL AND ATHERMAL DEFORMATION PROCESSES. (3 hours.) Empirical approaches to experimental results; elementary rate theory; introduction to activation free energies, enthalpies and entropies; physical significance of activation areas and volumes; experimental determination of activation parameters; rate theory applied to high temperature deformation; periodic internal stress models; rate theory applied to low temperature deformation; athermal deformation processes. PROFESSOR JONAS

306-635A. ADVANCED MINERAL PROCESSING. (80-84 hours per session.) Modern advances in mineral processing techniques on-stream analysis. PROFESSOR DAVENPORT

306-641D. MINERAL DRESSING AND MILL DESIGN. (2 hours.) Physical and chemical treatments for the recovery of valuable minerals in ore. The application of techniques embodying gravity concentration, electrostatic and magnetic separations, and flotation with emphasis on mill design. PROFESSOR SALMAN

306-642D. MINERAL DRESSING. (2 hours.) Mineral separations and recoveries by flotation. Studies of sorption processes and surface reactions. PROFESSOR SALMAN

306-650D. RESEARCH SEMINAR for students registered in a Master's degree program. STAFF

306-714D. TOPICS IN ADVANCED PHYSICAL METALLURGY. (2 hours.) Topics selected from recent research in physical metallurgy. STAFF

306-722A, B. STRENGTHENING AND FRACTURE OF METALS. (3 hours.) Strengthening mechanisms in metals: superalloy and order hardening, solute, precipitate, and dispersion hardening, grain boundary and sub-boundary hardening; theories of lattice friction; discontinuous yielding and dynamic strain aging; grain boundary sliding, dynamic recrystallization and superplasticity; mechanisms of ductile and brittle fracture. PROFESSOR JONAS

306-750D. RESEARCH SEMINAR for students registered in a Ph.D. program. STAFF

E15.3.2 COURSES IN MINING ENGINEERING AND APPLIED GEOPHYSICS

307-602D. ROCK MECHANICS AND GEOPHYSICS SEMINAR. Selected topics in Rock Mechanics and Geophysics will be presented by students and staff members. STAFF

307-603D. MINING ENGINEERING SEMINAR. For students registered in the Diploma or M.Eng. (Min.) program. STAFF

307-605A. ROCK MECHANICS. I. (2 hours.) A study of the effects of rock properties and ground stresses on problems of mine design. PROFESSOR UDD

307-606B. ROCK MECHANICS. II. (2 hours, alternate weeks, 3 hours laboratory.) The application of the principles of strength of materials to the analysis of problems of ground control. PROFESSOR UDD

307-607D. EARTH PHYSICS SEMINAR. Students and staff members will present selected and current topics under the following general headings; cosmology; seismology; earth's gravity, magnetic and electric fields; thermal history; tectonophysics; celestial mechanics. PROFESSORS TELFORD, SAULL, KU AND DOIG

307-608D. INTERPRETATIVE METHODS IN APPLIED GEOPHYSICS. Analysis of geophysical data in seismic, magnetic, gravity and electrical prospecting. PROFESSORS KU AND TELFORD

307-609D. APPLIED GEOPHYSICS SEMINAR. Case histories in petroleum and mineral exploration; well-logging methods; geophysical methods applied particularly to mining and civil engineering problems. (Course given in collaboration with Ecole Polytechnique.)
PROFESSORS TELFORD AND KU

307-610D. MINING ENVIRONMENTS. (80-84 hours.) Hygienic aspects of the mining environment; radiation hazards and control; noise, airborne contaminants and ventilation; design principles for dust control and air conditioning systems; fan theory and application; illumination theory and design; control of noise and vibrations. PROFESSOR DJAMGOUZ

307-611D. GROUND CONTROL AND FRAGMENTATION. (80-84 hours.) Geo-mechanics, soil and rock mechanics applied to mining operations and mine design; theory of models; deformation, flow and behaviour of fragmented geologic materials; the properties and behaviour of compacted hydraulic/pneumatic stope fill and problems associated therewith.
PROFESSOR UDD

307-612D. MATERIALS HANDLING IN MINES. (80-84 hours.) Critical analysis of solid materials transportation systems; critical analysis of fluid/fluo-solids transporting systems, including mine drainage, ventilation networks, compressed air reticulation, and hydraulic stowage; mathematical models, operational research; analogue and digital computer applications; influence of selected systems upon mine design and layout. PROFESSOR DJAMGOUZ

307-616D. MINERAL INDUSTRY ECONOMICS. (80-84 hours.) The course covers a broad range of decision-making problems in the mineral industry, including the mine development decision, economic problems confronting the mining company — corporate planning, exploration strategy, mine finance and mineral market forecasting — and mineral policy problems (such as taxation and regional development). PROFESSOR MACKENZIE

*307-617D. MINERAL/METAL PRODUCTION. (80-84 hours.)

*307-618D. THE MARKETING OF MINERAL PRODUCTS. (80-84 hours.)

307-621D. HUMAN RELATIONS IN THE MINERAL INDUSTRY. (80-84 hours.)

(A) ORGANIZATIONAL HUMAN BEHAVIOUR. A general study of the interrelationships of human, social, technical and organizational forces which underlie actions and procedures of people in work situations.

(B) MINING ORGANIZATIONAL PROBLEMS. Organizational structures; performance assessments; procedures re employee selection, promotion, communication, operational problems; principles of job control and job training; inter-personal relationships.
MR. HAWKINS

307-622D. MANAGEMENT-LABOUR RELATIONS. (80-84 hours.) History and character of Canadian (and U.S.) labour movements; problems re conduct of labour relations under collective bargaining processes; management-union relationships; public policy; critical national negotiations. MR. HAWKINS

*307-623D. ANALYSIS OF QUANTITATIVE DATA (80-84 hours.)

*307-624D. MINERAL INDUSTRY DECISION-MAKING. (80-84 hours.)

307-628D. SURVEY OF IMPORTANT MINING/MINERAL INDUSTRIES. (80-84 hours.) A comprehensive study of mineral technology or economics applied to specific minerals industry cases. STAFF

*Not being offered in 1973-74.

307-795D. MINING RESEARCH SEMINAR. For students registered in a Ph.D. program. STAFF

E15.3.3 UNDERGRADUATE COURSES

The following undergraduate courses are available to graduate students who have not taken an equivalent course.

306-123A. MINERAL INDUSTRY ECONOMICS I. MR. BOIRE

306-225A. MATHEMATICAL APPLICATIONS IN THE MINERAL INDUSTRY I.
PROFESSORS KU AND MACKENZIE

306-224B. MINERAL INDUSTRY ECONOMICS II.
PROFESSOR BEASLEY, AND MESSRS. HAWKINS AND DROLET

306-230A. GEOPHYSICAL EXPLORATION. PROFESSOR TELFORD

306-326B. MATHEMATICAL APPLICATIONS IN THE MINERAL INDUSTRY II.
PROFESSORS BEASLEY AND MACKENZIE

306-321A. BEHAVIOUR OF ROCK STRUCTURES. PROFESSOR UDD

306-331A. ADVANCED EXPLORATION GEOPHYSICS I. PROFESSOR TELFORD

306-332B. MATHEMATICAL APPLICATIONS IN GEOPHYSICS. PROFESSOR KU

306-422B. MINING FEASIBILITY STUDIES. PROFESSOR BEASLEY

306-433B. ADVANCED EXPLORATION GEOPHYSICS II. PROFESSOR TELFORD

306-434B. POTENTIAL THEORY IN GEOPHYSICS. PROFESSOR KU

306-435A. ADVANCED EXPLORATION GEOPHYSICS III. PROFESSOR JENSEN

306-436B. ADVANCED EXPLORATION GEOPHYSICS IV. PROFESSORS TELFORD AND JENSEN

E 16 DEPARTMENT OF PHYSICS

E16.1 STAFF

Professors — J. M. ROBSON *(Chairman)*; R. E. BELL; G. W. FARNELL; F. T. HEDGCOCK; W. F. HITSCHFELD; M. P. LANGLEBEN; B. MARGOLIS; J. S. MARSHALL; W. M. MARTIN *(Assistant Chairman)*; E. R. POUNDER; R. T. SHARP; D. G. STAIRS; E. J. STANSBURY; D. R. STEVENSON; P. R. WALLACE

Associate Professors — J. R. ADDISON; A. O. CONTOGOURIS; J. E. CRAWFORD; S. DAS GUPTA; N. B. de TAKACSY; C-S LAM; S-K MARK; J. F. MATHISON; R. B. MOORE; T. F. MORRIS; W. B. MUIR; P. M. PATEL; D. G. RYAN; M. ZUCKERMANN

Assistant Professors — G. L. AUSTIN; R. HARRIS; R. HENZI; J. E. KITCHING; J K-P LEE; M. M. SHAPIRO; J. O. STRÖM-OLSEN; J. M. TRISCHUK; D. WALSH

Visiting Associate Professor — A. I. McPHERSON

E16.2 FIELDS OF RESEARCH

HIGH-ENERGY PHYSICS

Theoretical: The interests of the McGill high energy theoreticians range from studies of the properties of elementary particles, considerations of the physics of elementary particle reactions, to quantum field theory and applications of group theory. A special feature of some of the work is the close association with nuclear physics both as an aid to understanding particles and also in the use of high energy reactions to further our knowledge of the properties of nuclei.

Experimental: Members of this group are mainly engaged in counter and spark chamber experiments at the Berkeley and Brookhaven proton synchrotons. These experiments are concerned with boson spectroscopy, kaon regeneration, pion and muon nucleon interactions and tests of symmetry violation in elementary particle interactions. Experiments at the 500 GeV Batavia accelerator are being planned.

ICE-RESEARCH PROJECT

Interest centres on ice dynamics — response of floating ice to wind, current and tide — and electrical properties of sea ice. Field experiments in the Gulf of St. Lawrence are in progress. Participation is being planned in a large scale, international cooperative experiment in the Arctic Ocean.

NUCLEAR PHYSICS

Theoretical: The structure of light nuclei is currently being studied by a combination of shell model and deformed Hartree-Fock techniques. Coupled-channel formalism is being applied to investigate both inelastic scattering and particle transfer reactions that may proceed by a two-step mechanism.

Experimental (Foster Radiation Laboratory Group): The nuclear physics program at the Foster Radiation Laboratory centres around a 100 MeV proton synchrocyclotron and a data collection system using fixed wire spectrum analysers at various locations in the Laboratory, interfaced to a central computer. There exists, also, a research program centred on a beam line from the van de Graaff tandem accelerator at the Laboratoire de Physique Nucléaire of the Université de Montréal.

Experimental (Neutron physics): The experimental program is aimed at isolating a beam of neutrons whose velocity is only a few metres per second. The source of neutrons is a high flux nuclear reactor at the Chalk River Nuclear Laboratories and the very slow neutrons are isolated by their special properties of total reflection. They

will be used for experiments on the fundamental properties of neutrons, including their radioactive decay and their interaction with the gravitational field.

SOLID-STATE PHYSICS

Theoretical: Interest centres on metals and semiconductors in strong magnetic fields, superconductivity and magnetism.

Experimental (Eaton Electronics Laboratory Group): Interest centres on paramagnetic resonance and relaxation, properties of metal, alloys and semiconductors.

Experimental (Magnet Laboratory Group — Longueuil, P.Q.): The laboratory contains a nitrogen liquefaction plant, a 600 HP helium refrigerator and liquefier, a 250 K-Oe hybrid cryogenic-superconducting solenoid and pulsed magnets which can produce fields up to 700 K-Oe. Currently studies are being carried out on the properties of antiferromagnetic solids, high field superconductors, and magnetic properties of metals.

STORMY-WEATHER GROUP

This group uses the McGill Radar Weather Observatory at Ste. Anne de Bellevue which is equipped with a weather radar of outstanding capability. It records stormy weather in all seasons, supplemented in summer by three radio-direction-finding stations for lightning and three wide-angle-camera stations for stereoscopic cloud photography. There is also a program of cloud-temperature measurement by radiometric photography.

E16.3 INFORMATION, REGULATIONS AND REQUIREMENTS

1. Application for Admission

Inquiries should be addressed to The Chairman, Graduate Admissions Committee, Department of Physics.

2. Financial Assistance

Graduate students in Physics who are not recipients of Fellowships or Scholarships receive financial assistance in the form of a) Research Assistantships, or b) Laboratory Demonstratorships. The total award at the M.Sc. level is $3768/annum and at the Ph.D. level is $3960/annum.

3. Qualifying Students

(See Section 29b, Graduate Faculty Regulations.)

4. M.Sc. Requirements

a) Research and M.Sc. thesis thereon. b) Physics 198-610D. c) The equivalent of five half-courses to be chosen with the approval of the supervisor of the student's research and the Chairman of the Department, two of which must lie outside the candidate's field of specialization. 198-612A and 198-613B cannot be used to satisfy this latter requirement. Exceptional cases involving equivalent courses taken prior to registration in the Graduate Faculty will be considered on their merits by the Department.

5. Preliminary Examinations for the Ph.D. Degree

Candidates for the Ph.D. degree are required to take Preliminary Examinations.

6. Ph.D. Language Requirements

(See Section 25, Graduate Faculty Regulations.)

7. Ph.D. Course Requirement

An approved course of study for each candidate will be chosen in consultation with the candidate's research director and the Chairman.

8. Ph.D. Thesis

(See Sections 26 and 27, Graduate Faculty Regulations.)

9. Colloquia in Seminars

All graduate students are expected to participate in Department colloquia organized by the McGill Physical Society. Participation is also expected in the specialized seminars of the various research groups.

10. Courses Offered

Some of the following courses may not be offered in 1973-74. It is advisable to consult the office of the Chairman of the Physics Department.

E16.4 ADVANCED UNDERGRADUATE AND GRADUATE COURSES

E16.4.1 GROUP I

198-451D. QUANTUM MECHANICS. (3 hours.) Mathematical techniques. Physical basis of quantum theory. Angular momentum and spin. Theory of scattering. Perturbation theory. Identical particles. Introduction to relativistic equations. Applications to important topics in atomic physics and, where possible, to nuclear and particle physics.
PROFESSOR CONTOGOURIS

198-452D. ELECTROMAGNETIC THEORY. (3 hours.) General properties of a vector field. The electrostatic field. Currents and their interactions. Maxwell's equations. Energy, force and momentum in electromagnetic field. Plane waves. The inhomogeneous wave equation. Advanced and retarded potentials. The field of a moving electron. Radiation from an accelerated charge.
PROFESSOR KITCHING

198-455D. MATHEMATICAL PHYSICS. (3 hours.) Selected topics in mathematical physics.
PROFESSOR MORRIS

198-610D. ADVANCED QUANTUM MECHANICS. (3 hours.) Basic theory of Quantum Mechanics; treatment of special topics: theory of angular momentum, perturbation theory, scattering-theory, many-body problems; the Dirac Theory; quantization of the electromagnetic field.
PROFESSOR ZUCKERMANN

198-612A. ADVANCED MATHEMATICAL PHYSICS. (3 hours.) Selected topics from differential equations, Green's functions and integral equations; applications to physics.
PROFESSOR SHARP

198-613B. ADVANCED MATHEMATICAL PHYSICS. (3 hours.) Group representation theory with application to physics.
PROFESSOR SHARP

198-614A. RELATIVITY. (3 hours.) Tensor analysis; elementary mechanics of particles and continuous systems in special relativity; accelerated coordinate frames; the Einstein equations and the static Schwartzchild solution.
PROFESSOR DE TAKACSY

198-615B. INTRODUCTORY ASTROPHYSICS. (3 hours.) Cosmology; elementary stellar structure; neutron stars; gravitational collapse.
PROFESSOR DE TAKACSY

198-616A. CLOUD PHYSICS. (3 hours.) Introduction to cloud physics.
PROFESSOR MARSHALL

*198-617B. ICE PHYSICS. (3 hours.) Acoustical, electrical, mechanical and thermal properties of sea ice and fresh-water ice; energy exchange in the atmosphere-ice-ocean system; ice movement.
PROFESSORS POUNDER AND LANGLEBEN

198-618B. SOLID STATE PHYSICS. (3 hours.) Lattices and their excitations; the theory and properties of normal and superconduction metals, semiconductors and their applications; magnetism.
PROFESSOR STRÖM-OLSEN

198-621A. NUCLEAR PHYSICS. (3 hours.) Nuclear ground state properties; nucleon-nucleon interaction; radioactive decays; nuclear transitions; models of nuclei; nuclear reactions; experimental techniques.
PROFESSOR LEE

198-622B. PARTICLE PHYSICS. (3 hours.) Invariance and conservation laws; classification of elementary particles; relativistic kinematics; phase space considerations; pion-nucleon interaction; form factors; particle decays; Quark model.
PROFESSOR PATEL

E16.4.2 GROUP II

198-700D. PRELIMINARY Ph.D. EXAMINATION.

198-710D. QUANTUM FIELD THEORY. (3 hours.) The content of the course includes discussions on relativistic single particle wave functions, quantized fields and their symmetry properties,

perturbation theory and applications, as well as the use of analytic properties of relativistic quantum fields. PROFESSOR LAM

*198-712D. MANY-BODY PROBLEMS. (3 hours.) Modern topics in many-body problems, including field-theoretical methods; applications to electron-electron and electron-phonon interactions in solids; plasmons; special topics in magnetism, superconductivity and superfluidity. PROFESSOR WALLACE

198-714D. EXPERIMENTAL SOLID STATE PHYSICS. (3 hours.) Topics, reflecting the interests of the students and the faculty involved, will be selected from the following experimental research areas: experimental low temperature solid state physics techniques; magnetism; electron transport phenomena; fermiology, propagation of electromagnetic waves in solids including resonance effects; semiconductors; superconductivity; electronic structure of alloys; properties of insulators. PROFESSOR HEDGCOCK AND STAFF

198-716D. THEORETICAL SOLID STATE PHYSICS. (3 hours.) Second quantization; Wick's theorem; Thermodynamic Green's functions; Feynman diagrams. Superconductivity: experimental introduction; phenomenological theories, Landau-Grinsburg theory; pure superconductors and superconducting alloys; Magnetism: Hubbard's model for narrow band transition metals, ferromagnetism and antiferromagnetism in itinerant electron systems; Fedder-Martin model for Chromium; Green's function formulation of response theory; application to theory of spin waves in magnetic metals. PROFESSOR ZUCKERMANN

198-718B. SPECIAL TOPICS IN SOLID STATE PHYSICS. (3 hours.) Specialised discussion of current problems in solid state physics. STAFF

198-720D. EXPERIMENTAL NUCLEAR PHYSICS. (3 hours.) The course covers the fundamentals of experimentation in nuclear physics; properties of nuclear states; nuclear reactions; electromagnetic and beta decays; and the application of current theories to experimental results. PROFESSOR MARK

198-722D. THEORETICAL NUCLEAR PHYSICS. (3 hours.) The quantum mechanics of nuclear processes, including nuclear ground state properties; nuclear forces and the two-body interaction, nuclear structure and models; beta and gamma emission; nuclear reactions. PROFESSOR DAS GUPTA

*198-726D. EXPERIMENTAL HIGH ENERGY PHYSICS. (3 hours.) High energy linear and circular accelerators — detailed design considerations in the NAL 500 GeV proton accelerator, the SLAC 20 GeV electron linear accelerator and CERN Intersecting Storage Rings, future prospects; beam design; high energy detectors — scintillation counters; spark chambers, bubble chambers and new proposals; kinematics; particle classification; spin and parity determination; discrete symmetries; internal symmetries; high energy two-body reactions; multiparticle production; Quark model. PROFESSOR PATEL AND STAFF

198-728D. THEORETICAL HIGH ENERGY PHYSICS. (3 hours.) Theory and phenomenology of strong, electromagnetic and weak interactions; particle classification schemes, high energy reactions, including Regge theory and dispersion relations; electromagnetic form factors and weak interaction decay phenomena. PROFESSOR MARGOLIS

198-730B. SPECIAL TOPICS IN HIGH ENERGY PHYSICS. (3 hours.) Specialised discussion of some current problems in particle physics. PROFESSOR STAIRS

*198-740D. ADVANCED ASTROPHYSICS. (3 hours.) A survey of modern theories including stellar atmospheres, energy sources, stellar structure and evolution; magnetohydrodynamics. PROFESSOR MORRIS

198-799D. SEMINARS. Each of the research groups in High Energy Physics, Ice Physics, Nuclear Physics, Solid State Physics and Stormy Weather Physics organises research seminars to be presented by students, staff and visitors. Ph.D. candidates are required to attend and participate in the seminars organized in their field of specialisation.

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "F" SOCIAL SCIENCES

1973-74

NOTE: Courses, marked with an asterisk (*), are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course

B — Spring term course

C — Summer term course

D — Fall and Spring term course

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

Legal deposit II 73

F1 DEPARTMENT OF ANTHROPOLOGY

F1.1 STAFF

Professors — B. G. TRIGGER *(Chairman);* D. R. ARONSON; P. C. W. GUTKIND; R. F. SALISBURY; P. C. SALZMAN

Associate Professor — *(Vacant)*

Assistant Professors — B. ARCAND; G. GMELCH; C. LAMBERT; J. ROUSSEAU; PETER SINDELL; F. IKAWA-SMITH

F1.2 PROGRAMS

The department offers training leading to the degrees of Master of Arts and Doctor of Philosophy in Anthropology. Admission is normally to the M.A. program, except in cases in which a student already has an M.A. in Anthropology or an allied discipline. It is expected, however, that most applicants will be oriented towards achievement of the Ph.D.

The graduate program is designed to encourage productive scholarship and intellectual growth while training professional anthropologists at the same time. The early part of a candidate's graduate career is designed to encourage the exploration of new areas and to develop competences within a range of the total spectrum of the discipline. The latter part emphasizes the development of specialist research skills. The degree requirements are, therefore, aimed at giving maximum freedom to individual directions within anthropology while also stimulating early choice-making, quick progress, and immediate and full evaluation. In this light the duration of the M.A. or Ph.D. program is flexible, and will take into account especially the differential backgrounds with which candidates start. As a general guide, however, it is assumed that most of the requirements for the M.A., except the thesis, will be completed within a year of entry, and that the candidate will start Ph.D. field work within two to three years of the beginning of his M.A. program.

Towards maximizing freedom and accomplishment the student-adviser relationship is crucial. After an orientation program in the early fall the beginning graduate student will choose an adviser with whom he will work out at least the broad outlines and general timetable for the completion of his requirements. The major part of his M.A. work will be done in tutorials with individual members of staff. Evaluation by the department will be made as each tutorial is completed, and there is no comprehensive examination. Normally the first year student will register for three or four graduate-level courses each term.

Prospective students should write for full descriptive materials and applications *directly to the Graduate Secretary of the Department.*

Students must submit with their applications the results of the Aptitude Tests of the Graduate Record Examination, arrangements to take which should be made directly with the Educational Testing Service, Box 955, Princeton, New Jersey 08540, U.S.A. In addition to the normal application a statement concerning the student's plans, aims, and interests within anthropology is required.

A number of teaching assistantships are available to graduate students in the Department. Students who wish to be considered for such assistantships should inform the Graduate Adviser of the Department. Scholarships are also available from the University, and are applied for directly to the Fellowship Office of the Faculty of Graduate Studies and Research. Students should also apply for Canada Council and other outside fellowships whenever possible.

Applications for graduate admission must reach the Department not later than 1 March if applicants wish to be considered for September admission, although in exceptional cases later applications might be considered. Applicants can expect to hear the outcome of their application by about 1 April.

F1.3 REQUIREMENTS

F1.3.1 REQUIREMENTS FOR THE M.A. DEGREE

"Demonstration of competence" in five topics of anthropology: e.g. political anthropology, economic anthropology, archaeology, methodology, etc. Information available from the Department defines and specifies the competences to be gained.

The presentation and defence of a thesis proposal and the completion of a short thesis demonstrating the ability to, and the experience of, having carried an anthropological research project through all its stages — planning on the theoretical, methodological and ethnographic level, gathering data, and writing up of results.

F1.3.2 REQUIREMENTS FOR THE Ph.D. DEGREE

Completion of all requirements for the M.A. degree. If a student holds an M.A. from a university other than McGill, he may be asked to make up any deficiencies in his prior training before continuing on to the remaining requirements.

The candidate must demonstrate competence in the foreign language most relevant to his research plans. He should do this before taking his preliminary examination.

The passing of a preliminary oral examination, which will cover three fields of the discipline related to the student's research topic. One field will be a detailed understanding of the ethnology of and research possibilities in one of the major culture areas of the world. The other two special fields will be topics for which departmental supervision is available. The examination will emphasize the relation of the three fields to the field research that the candidate proposes.

The oral presentation of a fieldwork proposal, often, but not necessarily, conjointly with the preliminary examination.

The carrying out of fieldwork and the presentation and oral defence of a completed thesis.

F1.4 COURSES FOR HIGHER DEGREES

151-402A.	THE HISTORY OF ANTHROPOLOGICAL THEORY.	PROFESSOR SALISBURY
151-404B.	TOPICS IN PSYCHOLOGICAL ANTHROPOLOGY.	PROFESSOR SALZMAN
*151-415A.	PROBLEMS IN AFRICAN ANTHROPOLOGY.	PROFESSOR ARONSON
151-428B.	TOPICS IN THE ANTHROPOLOGY OF EDUCATION.	PROFESSOR SINDELL
151-422A.	HISTORY, IDEOLOGY AND THEORY IN SOCIAL CHANGE AND MODERNIZATION OF NON-WESTERN SOCIETIES.	PROFESSOR GUTKIND
*151-423B.	IDEOLOGY AND CONCEPTS IN SOCIAL ANTHROPOLOGY.	PROFESSOR GUTKIND
151-424A.	ECONOMIC ANTHROPOLOGY.	PROFESSOR SALISBURY
151-429B.	TOPICS IN THE STUDY OF CONTEMPORARY LATIN AMERICA.	
151-437A.	ANTHROPOLOGICAL APPROACHES TO DIRECTED CULTURE CHANGE.	
151-440B.	SEMINAR IN ANTHROPOLOGY OF COGNITION.	PROFESSOR ARCAND
151-445B.	PEOPLES OF THE MIDDLE EAST.	PROFESSOR SALZMAN
151-447B.	EARLY MAN IN THE NEW WORLD.	PROFESSOR IKAWA-SMITH
151-448B.	SETTLEMENT ARCHAEOLOGY.	PROFESSOR TRIGGER
151-450B.	THIRD WORLD PEASANTRIES.	PROFESSOR GUTKIND
151-680A.	M.A. TUTORIAL READING.	STAFF
151-681B.	M.A. TUTORIAL READING.	STAFF
151-682A.	M.A. TUTORIAL READING.	STAFF
151-683B.	M.A. TUTORIAL READING.	STAFF
151-684D.	M.A. TUTORIAL READING.	STAFF
151-700D.	Ph.D. PRELIMINARY EXAMINATION.	

F1.4.1

SEMINARS

151-702A. SEMINAR: ETHNOHISTORY METHOD. PROFESSOR TRIGGER

151-716A. SEMINAR: TOPICS IN THE ANTHROPOLOGY OF COMPLEX SOCIETIES.

151-720B. SEMINAR: POLITICAL ANTHROPOLOGY. PROFESSOR SALZMAN

151-723B. SEMINAR: CONTEMPORARY SOCIAL INSTITUTIONS IN AFRICA. PROFESSOR GUTKIND

*151-724B. SEMINAR: CONTEMPORARY SOCIAL INSTITUTIONS OF THE CARIBBEAN.

151-725B. SEMINAR: NORTHERN RESEARCH. PROFESSOR SINDELL

*151-726B. SEMINAR: MIDDLE EASTERN ANTHROPOLOGY. PROFESSOR SALZMAN

*151-755A. SEMINAR: RESEARCH METHODS.

151-770B. SEMINAR: THEORETICAL PROBLEMS AND CONCEPTS IN THE STRUCTURE OF CULTURE.

151-775A. SEMINAR: ANTHROPOLOGY OF DEVELOPMENT. PROFESSOR SALISBURY

151-780A. READING AND RESEARCH. STAFF

151-781B. READING AND RESEARCH. STAFF

F 2 CENTRE FOR DEVELOPING-AREA STUDIES

The main function of the Centre is to encourage and coordinate interest in developing-area studies in the social sciences and to draw attention to the necessary links with the applied sciences both at McGill and in cooperation with other institutions through the agency of an Advisory Board and a small Executive Committee. To further this end, the Centre offers weekly informal workshops directed chiefly to McGill graduate students and organizes public lectures by visiting speakers.

COURSES AND SEMINARS

The list given below is provided for reference purposes only and represents all the courses offered by the University which could be of immediate interest to students of "development".

ANTHROPOLOGY 151-422A. HISTORY, IDEOLOGY AND THEORY IN SOCIAL CHANGE AND MODERNIZATION OF NON-WESTERN SOCIETIES. PROFESSOR GUTKIND

ANTHROPOLY 151-423B. IDEOLOGY AND CONCEPTS IN SOCIAL ANTHROPOLOGY. PROFESSOR GUTKIND

ANTHROPOLOGY 151-450B. THIRD WORLD PEASANTRIES: THE CHANGE FROM RURALITY OF URBAN PROLETARIANS. PROFESSOR GUTKIND

ANTHROPOLOGY 151-716A. SEMINAR: Topics in the anthropology of complex societies. STAFF

ANTHROPOLOGY 151-723B. SEMINAR: CONTEMPORARY SOCIAL INSTITUTIONS IN AFRICA. PROFESSOR GUTKIND

ANTHROPOLOGY 151-724B. SEMINAR: CONTEMPORARY SOCIAL INSTITUTIONS OF THE CARIBBEAN.

ANTHROPOLOGY 151-775A. SEMINAR: ANTHROPOLOGY OF DEVELOPMENT. PROFESSOR SALISBURY

ECONOMICS 154-736B. TECHNIQUES OF DEVELOPMENT PLANNING. A study of long-term planning to bring about structural changes in the economy and raise growth and employment rates. Emphasis is on underdeveloped countries and underdeveloped regions. PROFESSOR M. E. LOUTFI

ECONOMICS 154-782B. AGRICULTURAL POLICY. The nature and objectives of policy; use of economic analysis as a guide to formation and appraisal of agricultural policy; fallacies; the time dimension; reconciliation of conflicts; problems confronting agriculture — instability, inter-industry and interregional inequality, poverty and inefficiency; policies for achieving greater economic welfare and progress. PROFESSOR MacFARLANE

ECONOMICS 154-742B. ECONOMIC AND POLITICAL DEVELOPMENT. This course will discuss the continuing Canadian problems of unemployment, inflation and foreign ownership, the Harrod question, Are monetary and fiscal policies enough?, the necessary integration of all elements of economic policy including trade, exchange rate, competition, resource and growth objectives. PROFESSOR KIERANS

GEOGRAPHY 183-604A. ECONOMIC GEOGRAPHY PART I.

GEOGRAPHY 183-605B. ECONOMIC GEOGRAPHY PART II.

GEOGRAPHY 183-606A. GEOGRAPHY AND DEVELOPMENT PART I.

GEOGRAPHY 183-607B. GEOGRAPHY AND DEVELOPMENT PART II.

GEOGRAPHY 183-609A, B. HUMAN GEOGRAPHY: SOCIAL AND BEHAVIOURAL PROBLEMS.

GEOGRAPHY 183-622A, B. HUMID TROPICAL ENVIRONMENTS.

POLITICAL SCIENCE 160-647A. POLITICAL DEVELOPMENT IN THE NEW NATIONS. Contributions to the study of political development; major aspects of the development process in the new nations, traditional society and social mobilization; group conflict and national integration; institution-building; systematic goals and performance. PROFESSOR NAYAR

POLITICAL SCIENCE 160-747B. POLITICS OF DEVELOPING AREAS. The political systems, the process of political modernization, and political problems of selected developing states. PROFESSOR NAYAR

*POLITICAL SCIENCE 160-748B. SOUTH ASIAN POLITICS. (*Prerequisite:* Political Science 332A.) An investigation into key political problems of India and Pakistan in their Social and Economic setting. PROFESSOR NAYAR

SOCIAL WORK 407-507D. SEMINAR IN INTERNATIONAL SOCIAL WORK. Problems involved in the application of social work techniques in developing areas. This seminar runs throughout the academic year. PROFESSOR LIGHTMAN

Seminars in the field of "development" are also offered on request by the Brace Research Institute and the Faculty of Engineering:

AGRICULTURAL ENGINEERING 336-602A. ENVIRONMENT CONTROL IN AGRICULTURAL STRUCTURE. A study of the environmental effects of housing on plants and animals. The production, maintenance and control of the environment. The effects of the interior environment on structured components. PROFESSOR OGILVIE

AGRICULTURAL ENGINEERING 336-609A. HYDROLOGY. A fundamental course in hydrology. Topics covered include the inter-relationships between precipitation, interception, infiltration, evapotranspiration, and surface run-off; analysis of precipitation and streamflow data, use of hydrograph; hydraulics of groundwater; use and replenishment of groundwater; evaporation and transpiration; irrigation water requirements. PROFESSOR BROUGHTON

ENGINEERING 403-610B. UTILIZATION OF WIND AND WATER POWER. PROFESSOR LAWAND

ENGINEERING 403-602A or B. UTILIZATION OF SOLAR AND LOW GRADE THERMAL ENERGY. PROFESSOR LAWAND

ENGINEERING 403-603D. DESALINATION AND WATER PURIFICATION. PROFESSOR LAWAND

ENGINEERING 403-605C. SOLAR DISTILLATION. Summer Seminar. PROFESSOR LAWAND

NOTE: Further information about the Centre's plans and activities may be obtained by writing to the Director.

F 3 DEPARTMENT OF ECONOMICS

F3.1 STAFF

Professors — A. ASIMAKOPULOS *(on leave 1973-1974);* E. F. BEACH; I. BRECHER; E. KIERANS; D. L. MacFARLANE; J. C. WELDON; H. R. C. WRIGHT

Associate Professors — J. G. SMITH; A. DEUTSCH; A. H. FENICHEL *(on leave 1973-74);* J. A. GALBRAITH; C. GREEN; J. HANDA *(on leave 1973-74);* S. H. INGERMAN *(on leave 1973-74);* D. J. KHAZZOOM; J. KURIEN; KAROLINE LEVITT; T. VELK; A. VICAS *(on leave 1973-74);* H. R. C. WRIGHT

Assistant Professors — P. DAVENPORT; M. FRANKMAN *(on leave 1973-74);*
G. GRANTHAM; J. W. ITON; M. A. LOUTFI; MARTHA LOUTFI; F. MARTIN;
R. NAYLOR; L. A. SODERSTROM; B. WURZBERGER

This announcement is prepared early in the calendar year, and so is likely to need modification by the time the academic year begins. A mimeographed supplement is available at the Department Office, and should be consulted. Changes are not likely to be numerous, but in some instances may be important to a sensible choice of program.

F3.2 REQUIREMENTS

F3.2.1 ADMISSION

Students holding a B.A. degree may be eligible for admission. Preparation equivalent to a McGill Honours Program in Economics is the normal requirement. Students who have deficiencies in their preparation but are otherwise judged to be qualified are admitted to a qualifying year, in which they undertake advanced undergraduate work.

Lectures and examinations in the graduate program in Economics are organized around 11 broad fields: (1) Agricultural Economics; (2) Econometrics; (3) Economic Development; (4) Economic History; (5) Economic Theory; (6) Industrial Organization; (7) International Trade; (8) Labour Economics; (9) Mathematical Economics; (10) Money and Banking; (11) Public Finance.

Courses at the 600 level will be offered in most of these fields in each session, and when such a course cannot be offered in a particular field a reading course, with tutorial assistance, will be made available. Students who have not previously passed a suitable course in Statistics must take the undergraduate honours statistics course, Economics 154-357D. A two-semester course in the history of economic thought is also a prerequisite for a Graduate Degree in economics, and students who have not taken such a course will be required to take Economics 154-350D. Courses at the 700 level (seminars) are offered in most of the 11 fields listed above. They are generally given in the second term and have as a prerequisite the corresponding 600 level courses.

F3.2.2 REQUIREMENTS FOR THE M.A. DEGREE

The Master's degree in Economics is obtained after successful completion of the Graduate General Examination, course and seminar requirements, and a thesis. The minimum passing grade for graduate courses and examinations is 65 percent. A well prepared student should not require more than 12 calendar months to complete the degree requirements.

1. The Graduate General Examination consists of two comprehensive examinations. Each M.A. student must write two papers:

i) a five hour comprehensive examination in economic theory (micro and macro) and

ii) a three hour comprehensive examination in another field chosen by the student from the 11 listed above (excluding Mathematical Economics).

The courses in Economic Theory, 154-611D and 154-621A, help prepare the student for the comprehensive examination in theory, and the appropriately named 600 level course provides assistance in preparing for the other field examination; but it is the responsibility of the student to ensure that he is adequately prepared for the whole of his fields.

2. The student must obtain at least 65 percent in an approved 600 level one-term course in a field other than economic theory or his comprehensive field. This course may be in another discipline.

3. Successfully complete the requirements of one 700 level course (seminar).

4. Complete a Master's thesis, the subject of which must be approved by the Research Committee. The paper written for one of the student's seminars (700 level courses) often forms the basis of his thesis.

F3.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

McGill students must normally receive a minimum grade of 70% in the Graduate General Examination to be considered for the doctoral program. Students who obtain an average of at least 75% in this examination and in each of their seminars may be permitted to proceed directly to the Ph.D. program without completing a Master's thesis. Candidates from other universities will be considered for admission to the Doctoral program if they possess a Master's degree in Economics and have a good academic record. They will be required to take the comprehensive part of the Graduate General Examination at the same time as the M.A. students before they can proceed to their Ph.D. Comprehensive Oral Examination. At the first examination period they must write the Economic Theory paper and one of the special field examinations, but they can postpone the third paper until the second examination period. Three years of residence (one of which may be spent at another university) are required for a Ph.D. degree. Students who have a Master's degree from McGill or another university, or who have been given permission on the basis of their performance in that first year of graduate work at McGill to proceed directly to the Ph.D. program, are given credit for one year of residence and are enrolled in Ph.D. 2.

In the Ph.D. 2 year the student is strongly advised to take the two economic theory courses 154-720B, Microeconomics and 154-722B, Macroeconomics which are usually given in the second term. They are designed (in conjunction with 154-611D and 154-621A) to cover the economic theory requirements for the Ph.D. students. Three seminars will be required (one of which might have been taken as part of the M.A. program at McGill). The passing grade in each course or seminar is 65%. In addition, students must take 154-665A.

All doctoral candidates must pass an examination in unseen translation from two modern languages other than English, or one examination at an advanced level. If the candidate's mother tongue is not English, the Graduate Faculty may, if the Department so recommends, exempt that student from one of the two required language tests. An examination in mathematics may be substituted for one of the language requirements.

The student must pass an Oral Comprehensive Examination in three fields. One of these must be Economic Theory (including History of Economic Thought) while the remaining two are to be chosen from among the fields listed earlier (excluding Mathematical Economics). Before taking this examination he must have passed comprehensive examinations in these three fields. At the Ph.D. level, a student is designated either a Pass or a Failure. If he fails the Oral Comprehensive Examination, he may resit the examination after a minimum of three months has elapsed. He will be re-examined in all three fields.

The student must write a doctoral dissertation which makes an original contribution to the literature. The topic must be approved by the Research Committee and the dissertation will be supervised by a three-man committee. It must be passed by an external examiner.

F3.3 COURSES FOR HIGHER DEGREES

154-601D. M.A. GRADUATE GENERAL WRITTEN EXAMINATION.

154-602A. ECONOMIC HISTORY. Selected topics in European and North-American economic history are investigated from the standpoint of the interplay of institutional change and quantitative growth. PROFESSOR GRANTHAM

154-611D. MICROECONOMICS. A systematic course in the elements of microeconomic theory deemed essential for the Graduate General Examination. PROFESSOR BEACH

154-621A. MACROECONOMICS. A systematic course in the elements of macroeconomic theory deemed essential for the Graduate General Examination. PROFESSOR M. A. LOUTFI

NOTE: These two courses are required of all first-year graduate students in economics.

154-622A. PUBLIC FINANCE. An analysis of the public revenue and expenditure structure and its effects on resource uses and income distribution. Analysis of the effects of fiscal policy upon the level of employment, prices, and the rate of economic growth. This course is required

of students intending to write the general examination in public finance. It is recommended that this course be taken by students wishing to specialize in Public Finance.
PROFESSOR DEUTSCH

154-623A. MONEY AND BANKING. An examination of the effects of money, near monies and financial institutions upon the structure and operations of an economic system. It is recommended that this course be taken by students wishing to specialize in Money and Banking.
PROFESSOR VELK

154-624A. INTERNATIONAL ECONOMICS. A detailed examination of theories and policies in international trade and finance. It is recommended that this course be taken by students wishing to specialize in International Trade. PROFESSOR M. A. LOUTFI

154-631A. HISTORICAL EXPERIENCE OF ECONOMIC DEVELOPMENT. Examination of historical patterns of development in relation to currently less developed countries. It is recommended that this course be taken by students wishing to specialize in Development Economics.
PROFESSOR GRANTHAM

154-633D. MATHEMATICS FOR ECONOMISTS. (Non-credit.) An introduction to the techniques of calculus and linear algebra frequently encountered in economic theory and econometrics.
PROFESSOR WURZBERGER

154-634A. ECONOMIC DEVELOPMENT. A systematic treatment of the characteristics and problems of economic development in underdeveloped countries. It is recommended that this course be taken by students wishing to specialize in Development Economics.
PROFESSOR LEVITT

154-641A. LABOUR ECONOMICS. A synthesis of theoretical developments in the area of labour economics with stress upon problems of empirical testing. It is recommended that this course be taken by students wishing to specialize in Labour Economics.
PROFESSOR SODERSTROM

*154-650A. SELECTED TOPICS IN HISTORY OF ECONOMIC THOUGHT.

154-662A. INTRODUCTION TO ECONOMETRICS. It is recommended that this course be taken by students wishing to specialize in Econometrics. PROFESSOR KHAZZOOM

154-664B. ECONOMETRICS. A discussion of Economic Methods of handling errors in variables, autoregression, multicolliniarity, heteroscedasticity, lagged variables, dummy variables, and the handling of simultaneous equations. It is recommended that this course be taken by students wishing to specialize in Econometrics. PROFESSOR KHAZZOOM

154-665A. QUANTITATIVE METHODS. A survey of quantitative methods frequently used in economic research. Special emphasis will be placed upon the formulation and evaluation of econometric models. Illustrations will be drawn from the existing empirical literature in economics. Required for all Ph.D. students who have not taken Econometrics as a field.
PROFESSOR SODERSTROM

*154-667A-668B. MATHEMATICAL ECONOMICS. A mathematical treatment of basic economic theory. PROFESSOR KHAZZOOM

154-701D. Ph.D. GRADUATE GENERAL WRITTEN EXAMINATION.

154-702B. ECONOMIC HISTORY. A study of the historical background to economic growth and change in one country during a limited period of modern history. Other countries and other periods will be taken into account for purposes of comparison. PROFESSOR GRANTHAM

*154-711B. THEORY OF THE FIRM. A specialized study of the theory of the process of the firm.

154-712B. PUBLIC FINANCE. Selected topics in public finance. PROFESSOR DEUTSCH

*154-713B. WELFARE ECONOMICS. This course is intended for graduate students who have had a course in advanced theory and who, in particular, are well acquainted with modern demand theory. It is intended as a supplement to descriptive and analytical economics.

154-720A. MICROECONOMICS. Topics in microeconomics. This course is normally a prerequisite for the general oral examination for the Ph.D. degree in economics. PROFESSOR BEACH

154-721B. ADVANCED MONETARY THEORY. This seminar will examine selected topics in monetary theory, the theory of monetary policy, and the history of monetary institutions. It is suggested that students read *Stabilization Policies*, The Commission on Money and Credit, Prentice Hall, 1963; *Readings in Money National Income and Stabilization Policy* by Smith and Teigen, published by Irwin, pp. 1-118, and Chapter 13 of Friedman and Swartz's *Monetary History* in order to get a feeling for the course material. Seminar participants will be asked to prepare at least one paper. PROFESSOR VELK

154-722B. MACROECONOMICS. A systematic examination of selected topics in Macroeconomics. This course is normally required as a prerequisite for the general oral examination for the Ph.D. in economics. STAFF

154-724B. INTERNATIONAL ECONOMICS. Selected problems in international trade, foreign exchange and international movements of capital. PROFESSOR M. A. LOUTFI

154-725B. COST BENEFIT ANALYSIS. A detailed discussion of the development and scope of the subject. Particular applications of cost-benefit techniques, examining the uses made of them in the fields of water-resource development, transport, land usage, health, education and other areas of public enterprise operation. PROFESSOR M. A. LOUTFI

*154-731B. CANADA-UNITED STATES ECONOMIC RELATIONS. A study of key issues affecting economic relations between Canada and the United States. Among the topics analyzed will be foreign investment, the balance of payments, business fluctuations, and commercial and agricultural policies. PROFESSOR LEVITT

*154-732B. TRANSPORTATION. A study of the economics of transportation; its relation to the general body of economic theory; government regulation with emphasis on factors that fashion it.

154-734B. ECONOMIC DEVELOPMENT. Problems of economic growth and planning in selected underdeveloped countries. This seminar is also listed in the Centre for Developing Area Studies. PROFESSOR LEVITT

154-735D. GOVERNMENT REGULATION OF BUSINESS. Economic and legal problems in government promotion and maintenance of competitive industry. Major attention will be devoted to Canada, with comparisons to be drawn from United States and European experience. This seminar is given jointly by the Faculty of Law and the Department of Economics. PROFESSORS COHEN AND GREEN

154-736B. TECHNIQUES OF DEVELOPMENT PLANNING. A study of long-term planning to bring about structural changes in the economy and raise growth and employment rates. Emphasis is on underdeveloped countries and underdeveloped regions. PROFESSOR M. F. LOUTFI

154-741B. ADVANCED LABOUR ECONOMICS. A combined lecture and research seminar covering selected theoretical and policy issues in labour economics. PROFESSOR SODERSTROM

154-742B. ECONOMIC AND POLITICAL DEVELOPMENT. This course will discuss the continuing Canadian problems of unemployment, inflation and foreign ownership, the Harrod question, Are monetary and fiscal policies enough?, the necessary integration of all elements of economic policy including trade, exchange rate, competition, resource and growth objectives. PROFESSOR KIERANS

154-750A. SELECTED TOPICS IN ECONOMICS. This seminar will deal with topics of interest to the students and staff who are organizing the seminar. These topics will be in areas other than those covered by existing seminars and particular attention will be paid to critiques of neo-classical economic theory. STUDENTS AND STAFF

*154-761A. INPUT-OUTPUT ANALYSIS, LINEAR PROGRAMMING AND MULTISECTORAL ECONOMIC MODELS. National Economic Accounting, including Input-Output, and Flow of Funds accounts. Analytical uses relating to the impact of public and other expenditures on income. imports, savings, employment, etc. PROFESSOR LEVITT

154-762D. ECONOMETRICS. Econometric theory and application. PROFESSOR KHAZZOOM

*154-767B. APPLIED QUANTITATIVE ECONOMICS. Co-ordinated quantitative research projects under the guidance of the instructor to increase facility in quantitative research.

154-781A. AGRICULTURAL ECONOMICS. The nature of agricultural production; the economics of size in agriculture; intensity of production; the pricing mechanism for farm products; agriculture in world commerce, FAO, ITO; the role of agriculture in the Canadian economy; economic problems confronting the Canadian farm industry.

154-762B. AGRICULTURAL POLICY. The nature and objectives of policy; use of economic analysis as a guide to formation and appraisal of agricultural policy; fallacies; the time dimension; reconciliation of conflicts; problems confronting agriculture — instability, inter-industry and interregional inequality, poverty and inefficiency; policies for achieving greater economic welfare and progress. PROFESSOR MacFARLANE

154-799D. Ph.D. ORAL COMPREHENSIVE EXAMINATION.

F3.4 NON-CREDIT AND QUALIFYING-YEAR COURSES IN ECONOMICS

154-201D. THE INTERNATIONAL ECONOMY SINCE 1850. PROFESSOR WRIGHT

154-250D. INTRODUCTION TO ECONOMIC THEORY. PROFESSOR WELDON

154-301A. MODERN ECONOMIC HISTORY OF SOUTH ASIA. PROFESSOR WRIGHT

154-311D. NORTH AMERICAN ECONOMIC DEVELOPMENT. PROFESSORS FENICHEL AND WRIGHT

154-350D. HISTORY OF ECONOMIC THOUGHT. PROFESSOR VICAS

154-352D.	MACROECONOMICS.	PROFESSOR HANDA
154-357D.	ECONOMIC STATISTICS.	PROFESSOR KURIEN
154-367D.	MATHEMATICAL ECONOMICS.	PROFESSOR KHAZZOOM
154-401D.	LEADING PROBLEMS IN ECONOMIC HISTORY.	PROFESSOR LOUTFI
154-404D.	TRANSPORTATION.	MR. ROMOFF
*154-408D.	PUBLIC FINANCE.	PROFESSOR DEUTSCH
154-426D.	LABOUR ECONOMICS.	PROFESSOR INGERMAN
154-450A.	ADVANCED ECONOMIC THEORY.	PROFESSOR BEACH
154-453D.	INTERNATIONAL ECONOMICS.	PROFESSOR FRANKMAN
154-458D.	MONEY AND BANKING.	PROFESSOR VELK
154-460B.	ADVANCED ECONOMIC THEORY.	PROFESSOR KURIEN

F 4 FRENCH CANADA STUDIES PROGRAM/CENTRE D'ETUDES CANADIENNES-FRANCAISES

F4.1 STAFF

Director — Jean-Louis ROY

F4.2 PROGRAM

In 1963-64 McGill University established a French Canada Studies Program. Much of the energies and resources of the Program are devoted to research and teaching with a view to making McGill a centre of advanced study and original research in this area.

Graduate students may register with the French Canada Studies Program should their main field of study be French Canada. They should apply directly to the French Canada Studies Program which will then contact the relevant department in order to ascertain if the department is prepared to receive the applicant as a degree candidate and to appoint a co-director of research. The Director of the French Canada Studies Program, or his representative, and the departmental appointee will then act jointly and watch over the interests of the applicant.

Graduate students taking courses dealing in whole or in part with French Canada, or who are studying French Canada as their special field of study, are cordially invited to make use of the reference, documentation and bibliographical facilities of the French Canada Studies Program.

En 1963, un Centre d'Études canadiennes-françaises fut créé à l'Université McGill. En collaboration avec les autres Départements de l'Université, le but de ce Centre est d'assurer un enseignement et de développer la recherche à un niveau supérieur, sur divers aspects du Canada français.

Les étudiants qui désirent poursuivre des études en vue de l'obtention d'une maîtrise ou d'un doctorat en études canadiennes-françaises doivent agir de la manière suivante: L'étudiant gradué fait sa demande d'admission directement au Centre d'Études canadiennes-françaises. Celui-ci s'assure auprès du Département concerné que le candidat est suffisamment qualifié et l'accepte au niveau de la maîtrise ou du doctorat, suivant le cas. Le Directeur du Centre d'Études canadiennes-françaises, ou son délégué, et un représentant du Département dirigent conjointement les travaux de l'étudiant.

Les étudiants dont les cours portent, en tout ou en partie, sur le Canada français, ou qui se spécialisent dans ce domaine sont invités à se prévaloir du service de référence, de documentation et de bibliographie du Centre d'Études canadiennes-françaises.

F4.3 COURSE

157-626D. PROBLEMES POLITIQUES DU QUEBEC. Les participants seront appelés à étudier certains problèmes actuels de la politique québécoise. Au premier semestre, les étudiants se pencheront de façon particulière sur les différents paradigmes qui prétendent expliquer l'évolution de la société québécoise. Au deuxième semestre, les étudiants devront effectuer une recherche personnelle. PROFESSEUR DANIEL LATOUCHE

F 5 DEPARTMENT OF GEOGRAPHY

F5.1 STAFF

Professors — J. B. BIRD *(Chairman)*; H. C. BROOKFIELD *(on leave 1973-74)*; B. J. GARNIER *(on leave 1973-74)*; T. L. HILLS; T. LLOYD

Associate Professors — M. A. CARSON; R. N. DRUMMOND; J. M. GILMOUR; P. G. HOLLAND; J. LUNDGREN; B. H. MASSAM; J. T. PARRY

Assistant Professors — G. O. EWING; W. B. KEMP; T. MOORE; F. H. NICHOLSON *(Director, Subarctic Research Laboratory, Schefferville, Que.)*; S. OLSON; L. VEILLEUX *(Part-time)*; E. WADDELL; R. G. WILSON; R. C. ZIMMERMANN

Lecturer — J. J. DRAKE

Research Associate — G. SZEICZ

Honorary Staff — F. B. MULLER; G. JACOBSEN

F5.2 REQUIREMENTS

F5.2.1 ADMISSION

The Department offers the degrees of M.A., M.Sc. and Ph.D. in Geography. Inquiries and applications should be directed to the Graduate Affairs Office, Department of Geography, McGill University, P.O. Box 6070, Montreal 101, Que.

F5.2.2 REQUIREMENTS FOR THE M.A. DEGREE

The following candidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.A. degree of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography at McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good their deficiencies in undergraduate training in that session. These candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may register for the M.A. degree in Geography in certain circumstances, but in general they will be required to register for a qualifying year, and will not be able to submit their theses until the end of the second resident year.

Candidates must:

(1) pass written (and in some cases oral) examinations in at least two full graduate courses, at least one of which is in the Geography Department;

(2) attend the Graduate Colloquium, Geography 183-631D and such additional courses in Geography or cognate subjects as the Chairman and the student's director of research think fit. The additional courses may be for audit or examination;

(3) submit a thesis in an appropriate area of geographical inquiry.

The quality of the thesis will determine the final standing of the student.

F5.2.3 **REQUIREMENTS FOR THE M.Sc. DEGREE**

The following candidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.Sc. degree of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography from McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good the deficiencies in undergraduate training in that session. These candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may register for the M.Sc. degree in Geography in certain circumstances but in general they will be required to register for a qualifying year, and will not be able to submit their theses until the end of the second resident year.

Candidates must:

(1) pass written (and in some cases oral) examinations in at least two full graduate courses, at least one of which is in the Geography Department;

(2) attend the Graduate Colloquium, Geography 183-631D, and such additional courses in Geography or cognate subjects as the Chairman and the student's director of research think fit. The additional courses may be for audit or examination;

(3) submit a thesis in an appropriate area of geographical inquiry.

The quality of the thesis will determine the final standing of the student.

F5.2.4 **REQUIREMENTS FOR THE Ph.D. DEGREE**

Students who have attained high standing in the Master's degree in Geography at McGill may be permitted to proceed to the Ph.D. in two further years. Rarely, a student may be allowed to register for the Ph.D. degree without having first taken the Master's degree. The normal duration of a program, including field work where required, is three years.

Normally, the Department will restrict admission to the Ph.D. program to students prepared to work in one of the fields of human or physical geography in which specialized supervision is offered. These, which cover a wide range of systematic areas, are listed in documents available from the Department. Most work is carried out in eastern Canada, the Northlands or the American tropics, but some topics range further afield.

A broad familiarity with the content of modern geography will be expected of all students in the Ph.D. program. Competence in selected fields related to the research is tested in examinations normally held within the first year of study.

Candidates must:

(1) remedy any deficiencies in their formal training in geography and necessary cognate subjects;

(2) submit themselves for a comprehensive examination (183-701D) comprising prepared papers and an oral examination. Competence in certain fields may be tested separately, but as a necessary part of this examination;

(3) submit a thesis based on original research in human or physical geography;

(4) attend the Graduate Colloquium, Geography 183-631D, during one of their resident years, and other courses as determined individually;

(5) comply with a language requirement if this is so recommended by the student's committee.

To satisfy these requirements, the candidate may take any of the graduate or undergraduate courses offered by the Department.

F5.3 COURSES AND SEMINARS FOR HIGHER DEGREES

All courses meet once in each week.

183-602A. URBAN GEOGRAPHY, PART I. A critical review of environmental and spatial preference and perception in an urban context, together with an introduction to appropriate measurement and scaling techniques. PROFESSOR EWING

183-603B. URBAN GEOGRAPHY, PART II. Allocation-location problems in the public and private sectors; urban model-building; urban politics. PROFESSOR MASSAM

183-604A. ECONOMIC GEOGRAPHY, PART I. A geographical study of the phenomenon of entrepreneurship; its logistical, organizational and locational characteristics; scale of operation; the different forms of entrepreneurship in the economic geography of different levels of economic development. PROFESSORS LUNDGREN AND GILMOUR

183-605B. ECONOMIC GEOGRAPHY, PART II. A critical review of research on manufacturing industry, with particular emphasis on (a) the analysis of industrial agglomeration, (b) manufacturing in economically disadvantaged areas, (c) some geographical aspects of the multinational corporation, and (d) innovation and technology transfer.
PROFESSORS GILMOUR AND LUNDGREN

183-606A. GEOGRAPHY AND DEVELOPMENT, PART I. A review of the spatial problems of economic development in countries of the developing world, together with an examination of processes generating spatial inequality. Ecological considerations in economic development.
PROFESSOR HILLS AND STAFF

183-607B. GEOGRAPHY AND DEVELOPMENT, PART II. An examination of development problems in rural and urban areas of the Third World, with emphasis on agrarian structures and the social geography of urbanization. Regional emphasis will vary according to the interests of members of the seminar. PROFESSOR HILLS AND STAFF

183-608D. CULTURAL GEOGRAPHY. Discussion of theoretical concepts and methods of analysis in the study of cultural adaptation, developing a cross-cultural perspective in the analysis of both urban and rural cultural systems. The use of systems analysis; energy and information flow in relation to behaviour; adaptive strategies. Analysis of specific cultural systems and issues. PROFESSORS KEMP, WADDELL AND STAFF

*183-609A, B. HUMAN GEOGRAPHY: SOCIAL AND BEHAVIOURAL PROBLEMS. A survey of the treatment of society, social institutions and the individual as units of analysis within geography. Explanation and cognitive description in human geography.

183-611D. ADVANCED CLIMATOLOGY. An examination of the elements of the heat and water balance over land surfaces with particular reference to soil type and natural vegetation. Changes of climate and vegetation in the pleistocene and recent periods will be analyzed.
PROFESSOR WILSON

183-612D. ADVANCED PHYSIOGRAPHY. An analysis of recent advances in geomorphology. The physical landscapes of several parts of North America (including the Arctic) and the tropical world will be examined in detail. PROFESSORS BIRD, CARSON, MOORE AND PARRY

183-613D. ADVANCED BIOGEOGRAPHY. An examination of the nature, history, structure and function of biogeography. The importance of man both in and on ecological systems is stressed. Reports, papers and field work will be required.
PROFESSORS HOLLAND AND ZIMMERMANN

183-622A, B. HUMID TROPICAL ENVIRONMENTS. A geographical approach to the study of sample rain-forest and savanna landscapes of the humid tropics, with special attention to the human impact on the balance between forest and savanna. PROFESSOR HILLS

183-623A. SEMINAR ON REGIONAL RESEARCH, PART I. Presentation of background, and discussion of research interests of varied nature, in a region of common interest to a group of graduate students and staff. Regions will vary according to interest; probable selections will include Québec, the Gulf of St. Lawrence and the Maritimes, the Arctic and Northlands, the Caribbean, tropical Latin America. STAFF

183-624B. SEMINAR ON REGIONAL RESEARCH, PART II. (See course 183-623A for description.)
STAFF

183-631D. METHODS OF GEOGRAPHICAL RESEARCH. A review of the accepted methods of research in geographical problems, in both physical and human fields. The approach will be practical, and will require the presentation of formal research papers for criticism and discussion.
PROFESSOR BIRD AND STAFF

183-632A, B. ADVANCED CARTOGRAPHY. A systematic examination of modern geographic-cartographic techniques for the collection, evaluation, presentation and reproduction of spatially distributed data. Practical experience in the laboratory, the photographic darkroom field work and visits to cartographic agencies are an integral part of the course.
PROFESSOR DRUMMOND

183-633D. INTERPRETATION OF AIR PHOTOS AND IMAGERY. A systematic examination of procedures in remote sensing: air photos — basic photogrammetry and interpretation procedures; imagery — review of systems and interpretation of image displays.
PROFESSOR PARRY

183-634A, B. QUANTITATIVE METHODS IN GEOGRAPHY. This course comprises two distinct parts. The first term is devoted to the application of advanced quantitative techniques to geography; these techniques include simple and multiple regression/correlation analysis; factor and component analysis: one and two dimensional trend surface, harmonic and spectral analysis. The second term is left open in order to accommodate the particular interests of the students in any year.
PROFESSOR CARSON

F5.4 McGILL SUBARCTIC RESEARCH LABORATORY

This laboratory (under the direction of Professor Nicholson) is at Knob Lake (Schefferville), in the heart of Labrador-Ungava. Facilities exist for research in most aspects of physical geography. Extensive field programs are arranged. All inquiries should be addressed to the Chairman, Geography Department.

F 6 DEPARTMENT OF HISTORY

F6.1 STAFF

Professors — C. C. BAYLEY; P. C. HOFFMANN; M. MLADENOVIC; H. SENIOR; R. VOGEL
Associate Professors — M. P. MAXWELL *(Chairman);* N. BAMBA; P. H. BOULLE; L. L. LaPIERRE *(on leave);* P. T. K. LIN *(on leave);* A. R. RIGGS
Assistant Professors — L. DECHENE; M. J. ECHENBERG; J. W. HELLMAN; ELLA LAFFEY; C. I. MILLER; H. S. WEINROTH
Visiting Associate Professor — C. S. BURCHILL

F6.2 REQUIREMENTS

F6.2.1 ADMISSION

Candidates should submit their applications before 15 March 1974.

F6.2.2 Ph.D. LANGUAGE REQUIREMENTS

Candidates must offer one foreign language for examination purposes and they must also demonstrate a reading knowledge of such other languages as are required for research purposes in their major field.

F6.2.3 REQUIREMENTS FOR THE M.A. DEGREE

Candidates applying for a Master's degree in History are required to possess an Honours B.A. which may be in History alone or in History and one other subject. When taken in History alone it must include eleven full courses taken in prescribed sequence,

together with certain other approved courses notably in foreign languages. Graduate students who enter without this qualification may find it necessary to make good any deficiency in their undergraduate program and the Department is prepared to facilitate this.

Candidates may choose to proceed in one of two ways:

I. Candidates may proceed to the degree by the successful completion of the work of one (other than History 101-650D) of the Graduate Seminars listed below and by submitting an M.A. thesis, in the area of their special interest.

II. Candidates may proceed to the degree by:

a) the successful completion of the work of History 101-616D, Seminar in the Philosophy of History (if not available, another seminar should be taken);

b) the successful completion of the work in two further seminars one of which will represent the candidate's major field of interest and the other his minor field,

c) a Research Paper (History 101-650D) in the candidate's major field.

101-650D. RESEARCH PAPER IN MAJOR FIELD. This research paper must demonstrate the candidate's ability to do independent work in his major field of interest. It may not be presented before the completion of a full year (one academic session and a summer) of residence in the university. Permission may be given for the summer study to be undertaken at another institution. Regulations concerning the research paper may be obtained from the Department.

101-655D. Candidates whose major interest lies in fields in which no seminar is offered may, with the consent of their Director of Studies, offer extra tutorial work and such other seminar work as designated by their Director.
Candidates should check with the Department with regard to graduate seminars in view of the possibility that not all the seminars listed will be available.

F6.2.4 REQUIREMENTS FOR THE Ph.D. DEGREE

An M.A. in History is the prerequisite for all candidates applying to enter the Ph.D. program. Candidates at the end of the first resident year are required to pass an oral comprehensive examination consisting of:

101-702D. Comprehensive examination in major field.

101-703D. Comprehensive examination in first minor field.

101-704D. Comprehensive examination in second minor field.

Candidates must consult with their Director of Studies at the beginning of their Ph.D. work in order to determine their minor fields.

With the completion of the oral comprehensive examination, candidates may proceed with their doctoral dissertation.

The Department is prepared to direct theses of Graduate students in the following fields:

British History

a) England in the Middle Ages.
b) Scotland and Ireland in the 16th, 17th and 18th centuries.
c) English History.
d) British Imperial Policy: 1714-1914.
e) Certain aspects of British Foreign Policy since 1815.

Canadian History

a) New France.
b) The social and economic history of Montreal, 1800-1900.
c) The History of Lower Canada and Quebec in the 19th century.
d) Aspects of the History of French Canada in the modern period.
e) Canadian-American relations.

United States History

a) The history of the United States in the late colonial period.

European History

a) The constitutional development of the Holy Roman Empire in the 13th century.
b) The Reformation.
c) Aspects of the History of France.
d) Aspects of German History since 1800.
e) Certain aspects of the history of western Europe 1870-1914.
f) Certain aspects of East European, Russian and Soviet History.
g) Certain aspects of the history of Slavonic Europe.
h) War and Society in Modern Europe.
i) Certain aspects of the history of European-Chinese relations.
j) Aspects of Intellectual History of Modern Europe.

Non-European History

a) Aspects of African History.
b) Aspects of Chinese History since 1800.

The Redpath Library is well equipped with printed sources for the periods and subjects mentioned above, and students pursuing research in Canadian History will be required, as occasion arises, to avail themselves of the manuscript resources of the Public Archives at Ottawa and the Provincial Archives at Quebec, and of parochial and other records in Montreal and its vicinity.

However, the Departmentt may require candidates to spend one year in research at another university or repository of archives.

F6.3 GRADUATE SEMINARS AND COURSES

*101-604D. SEMINAR: COLONIAL AMERICA. PROFESSOR RIGGS

101-605D. SEMINAR: MODERN EUROPEAN INTELLECTUAL HISTORY. PROFESSOR HELLMAN

101-606D. SEMINAR: WAR AND SOCIETY IN 19th CENTURY RUSSIA. PROFESSOR MLADENOVIC

101-607D. SEMINAR: RELIGIOUS AND IDEOLOGICAL MOVEMENTS IN THE UNITED KINGDOM AND WESTERN EUROPE 1815-1914. PROFESSOR SENIOR

*101-608D. SEMINAR: UNITY AND DIVISION IN SIXTEENTH AND SEVENTEENTH CENTURY BRITAIN. PROFESSOR MAXWELL

*101-610D. SEMINAR: FRENCH COLONIES AND EXTERNAL COMMERCE IN THE EIGHTEENTH CENTURY. PROFESSOR BOULLE

101-612D. SEMINAR: PROBLEMS IN GERMAN HISTORY. PROFESSOR HOFFMANN

101-614D. SEMINAR: SOCIAL MOVEMENTS IN WESTERN EUROPE IN THE LATER MIDDLE AGES. PROFESSOR BAYLEY

*101-616D. SEMINAR: PHILOSOPHY OF HISTORY.

101-643D. SEMINAR: PROBLEMS IN CANADIAN HISTORY TO 1867. PROFESSOR DECHÊNE

101-652D. SEMINAR: PROBLEMS IN CANADIAN HISTORY, 1867-1967. PROFESSOR MILLER

101-668D. EAST ASIA. STAFF

F7 LAW

F7.1 DEGREES

The higher degrees in law are the M.C.L. (Master of Civil Law), the LL.M. (Master of Laws) and the D.C.L. (Doctor of Civil Law), as offered by the Institute of Air and Space Law, and the Institute of Comparative Law. All graduate students except for those registered in the Institute of Air and Space Law come under the direction of the Institute of Comparative Law.

F7.1.1 REQUIREMENTS FOR THE M.C.L. OR LL.M. DEGREE

A candidate for admission must hold the degree of B.C.L., with at least second class honours, from McGill University, or its equivalent, and satisfy the linguistic and other requirements of the Institute of his study. He must follow, throughout a session of resident full-time study, the courses prescribed for him by the Institute, including cognate courses in other departments of study. A candidate who satisfies the requirements of the year in residence must also under supervision prepare and submit an acceptable thesis and, if required by the Institute, undergo an oral examination designed to test his general knowledge of the field of his research studies.

In certain cases a transfer of candidacy from the M.C.L. or the LL.M. to candidacy for the D.C.L. may be permitted at the end of the year in residence. Such transfer is open only to a student who shows considerable promise and upon the recommendation of the Institute. A student so transferred will not be required to prepare a master's thesis but must spend at least one further year in residence at McGill.

F7.1.2 REQUIREMENTS FOR THE D.C.L. DEGREE

The program of each Institute consists of a minimum of three years' work from the first registration of the candidate, of which at least two years must be spent in full-time residence study at McGill. A candidate may be permitted or required, with the approval of the Committee on Research, to spend one session at another institution of higher learning. Only an applicant of proven legal scholarship of high merit will be admitted to candidacy for this degree and normally a candidate should be the holder of both a general degree and a law degree. In suitable cases the holder of the M.C.L. or LL.M. degree of McGill (or its equivalent) may be considered as having satisfied the first year of the Institute's doctoral program. An applicant must satisfy the linguistic and other requirements of the Institute of his study and, as a rule, an Institute will not permit a candidate who is not the holder of an appropriate Master's degree, or its equivalent, to register directly for the D.C.L. but require him to register for the M.C.L. or LL.M. A candidate for the M.C.L. or LL.M. degree of McGill, who, upon the completion of his first year of resident study, shows considerable promise may, upon the recommendation of the Institute of his study, be permitted to proceed to the second year of the D.C.L. program without being required to submit a Master's thesis.

At a stage in the program of his studies as determined by the Institute a candidate must pass an oral examination, the purpose of which is to test his general knowledge of the field of his research studies. Further, a candidate will be required to sustain his thesis before a jury appointed by the Faculty of Graduate Studies and Research and consisting of five adjudicants, including at least two who are not members of the Faculty of Law. To qualify for the degree the thesis submitted must be a significant contribution to legal scholarship, evidencing in concept and execution the individual work of the candidate, and in form suitable for publication.

F7.2 INSTITUTE OF AIR AND SPACE LAW

F7.2.1 STAFF

Professors — I. A. VLASIC *(Director)*; MAXWELL COHEN
Associate Professor — M. A. BRADLEY

F7.2.2 DEGREES AND DIPLOMA

The Institute of Air and Space Law operates within the Faculty of Law. The Institute provides facilities for advanced study and fundamental research in Air and Space Law and related problems of international law for highly qualified Law graduates or others with appropriate qualifications, and also provides an academic organization for fundamental research in these fields. The Institute offers a Diploma in Air and Space Law and the degrees of Master of Laws (LL.M.) and Doctor of Civil Law (D.C.L.).

F7.2.2.1 **Diploma**

Applicants for admission must hold a Law degree of high standing from an approved Law School in any part of the world, or must have an equivalent professional standing. Working competence in the English language is required but examinations and other written work may be presented in French. All candidates must present evidence of the subjects covered in their prior Law studies and of their scholastic or professional standing together with two suitable references.

A candidate who satisfies the residence requirements of one session and who passes the prescribed examinations will be awarded the Diploma in Air and Space Law.

The prescribed courses are:

387-611D. PUBLIC INTERNATIONAL AIR LAW.
387-612D. PRIVATE INTERNATIONAL AIR LAW.
387-613D. GOVERNMENT REGULATION OF CIVIL AVIATION.
387-614D. SPACE LAW.
387-615D. ECONOMICS OF AIR TRANSPORT.
387-616D. COMPARATIVE METHODOLOGY.
387-617D. TERM PAPER.

The Director may require additional courses of particular candidates.

F7.2.2.2 **Degree of Master of Laws**

A working competence in the English language is required but examinations and written work including theses may be presented in either English or French. All candidates must present evidence of the subjects covered in their prior Law studies and of their scholastic or professional standing together with two suitable references.

The prescribed courses are as those set out above for the Diploma, but in addition the candidates must present an acceptable thesis on a subject approved by the Director. No candidate may receive the Diploma and the Master's degree for the same course of studies. A candidate who has already received the Diploma in Air and Space Law may be accepted as a candidate for the Master's Degree, but he will be required to spend one additional academic session in residence, and he may also be required to undertake additional course work beyond the course work already performed for the Diploma, in addition to the thesis. All candidates must be in residence for one academic session but are advised to remain in residence for at least one calendar year.

F7.2.2.3 **Degree of Doctor of Civil Law**

The degree of Doctor of Civil Law is predominantly a research degree, and it will be awarded on the basis of a thesis that presents an original contribution to the development of Legal Science. A working competence in the English language is required, but the thesis may be presented in either French or English. All candidates must present evidence of the subjects covered in their prior Law studies and of their scholastic and professional standing together with two suitable references.

The Director may, in his discretion, require any candidate for the D.C.L. degree to attend one or more courses or seminars in the field of the candidate's thesis or in related subjects and satisfactorily to complete any examination requirements in those subjects. The Degree of D.C.L. will be awarded only after completion of three years from the first registration of the candidate for the D.C.L. degree; though in the case of a candidate who has already obtained a graduate degree within the Institute, this period may, with the special permission of the Institute, be reduced to two years. Of these three years, at least two must be spent in residence at the Institute. Permission to be "non-resident" for one of the three years must be secured from the Committee on Research.

F7.3 INSTITUTE OF COMPARATIVE LAW

The Institute of Comparative Law operates within the Faculty of Law. As a centre for comparative legal studies the Institute provides facilities for graduate work, advanced

studies and field research in areas of Public and Private Law. The Institute offers the degrees of Master of Laws (LL.M.), Master of Civil Law (M.C.L.) and of Doctor of Civil Law (D.C.L.).

F7.3.1 **STAFF**

Professors — H. R. HAHLO *(Director)*; MAXWELL COHEN; P.-A. CREPEAU; P. MEYER; I. A. VLASIC; D. W. M. WATERS

Associate Professor — J. E. C. BRIERLEY

Assistant Professors — H. P. GLENN; P. W. SLAYTON

F7.3.2 **REQUIREMENTS FOR MASTER OF LAWS AND MASTER OF CIVIL LAW DEGREES**

An applicant must hold the degree of B.C.L. or LL.B. with at least second class honours from McGill University, or its equivalent.

An adequate working knowledge of the English and French languages is required from all applicants. Applicants who wish to pursue studies which in the opinion of the Director require knowledge of a language other than English or French must possess adequate working knowledge of that language.

All applicants must present satisfactory evidence of the subjects covered in their prior law studies, of their schoalstic or professional standing, and of their linguistic proficiency in English and French, together with not less than two suitable references.

F7.3.2.1 **Courses and Registration**

Candidates for the Master's Degree must spend at least one academic year in residence. There is no uniform program of studies which every candidate must take. Each candidate follows a program of studies, determined by the Director, which in as far as possible is fashioned to meet his particular needs as determined by his prior legal experience and his aspirations.

As a rule a candidate must take in each of the two terms of the academic year a minimum of three courses which must include the course in Introduction to Comparative Law provided by the Institute, which extends over both terms. In addition, a candidate with a civil law background will normally be required to select at least one undergraduate course from the common law program, while a candidate with a common law background will normally be required to select at least one undergraduate course from the civil law program. The remaining courses may be selected, subject to the Director's approval, from the seminars provided by the Institute and any of the courses forming part of the curriculum for the B.C.L. or LL.B.

Each candidate will be required to submit a thesis on a subject approved by the Director either by the end of July following the academic year in which he first registered or at such date thereafter as might be determined by the Director. In the latter case, the thesis, with the leave of the Director, may be prepared *in absentia*.

In order to be allowed to submit a thesis, a candidate must have obtained a mark of at least 65% in each of the courses or seminars for which he registered.

Examinations, term papers and theses may be written either in English or French.

F7.3.3 **REQUIREMENTS FOR DEGREE OF DOCTOR OF CIVIL LAW**

The degree of Doctor of Civil Law is predominantly a research degree, and will be awarded on the basis of a thesis that represents an original contribution to the development of legal science. An adequate working knowledge of the English and French languages is required from all candidates. The thesis may be presented in either English or French. All prospective candidates must present evidence of the subjects covered in their prior Law studies and of their scholastic and professional standing together with two suitable references. The degree will be awarded, at the earliest, after the completion of three years from the first registration of the candidate: of these three years, at least two must be spent in residence at the Institute.

As a rule a candidate who does not already hold a Master's degree will be required to complete the Master's degree in the Institute before being accepted for the doctoral

program. A candidate who has obtained the Master's degree from another University will, as a rule, be required to complete the courses prescribed for the first year of the Master's degree. If his performance is not of sufficiently high standard to justify admission to the doctoral program, he will not be permitted to proceed any further, but may be permitted to submit a Master's thesis to qualify for the Master's degree. If his performance is of sufficiently high standard, on the other hand, he may be permitted to proceed to the second year of the doctoral program without being required to submit a Master's thesis, and will not, in this case, be required to spend more than one year in residence.

F 8 DEPARTMENT OF POLITICAL SCIENCE

This Announcement is prepared early in the calendar year and so is likely to need modification by the time the academic year begins. A mimeographed supplement is available at the Department Office, and it is essential for graduate students to consult this supplement in order to obtain a more complete description of the M.A. and Ph.D. programs.

F8.1 STAFF

Professors — MICHAEL BRECHER *(on leave 1973-74)*; BERNARD BROWN; JAMES R. MALLORY; BALDEV NAYAR; CHARLES TAYLOR

Associate Professors — THOMAS BRUNEAU; FRANK KUNZ; PAUL NOBLE; JANICE STEIN *(on leave 1973-74)*; MICHAEL STEIN *(on leave 1973-74)*; BLEMA STEINBERG; HAROLD WALLER *(Chairman)*

Assistant Professors — BARBARA HASKEL; DANIEL LATOUCHE; ROBERT METCALFE; SAMUEL NOUMOFF *(on leave 1973-74)*; HAROLD SARF; JOHN SHINGLER; PAULINE VAILLANCOURT

Visiting Professor — KHAYYAM PALTIEL

F8.2 REQUIREMENTS

F8.2.1 ADMISSION

Students holding a B.A. degree may be eligible for admission. Preparation equivalent to a McGill Honours Program in Political Science is a desirable requirement. Students who have deficiencies in their preparation but are otherwise judged to be qualified are admitted to a qualifying year, in which they undertake advanced undergraduate work.

Normal deadline for applications for admission to the Department is February 15. Applications must be received by that time in order to guarantee the fullest consideration. All applicants, including those who have done their undergraduate work at McGill, must submit two letters of reference. The department awards a number of teaching assistantships each year. The deadline for applications for these awards is March 1.

F8.2.2 REQUIREMENTS FOR THE M.A. DEGREE

There are three requirements:

1. Seven one-term courses of which at least one must be a seminar; at least four of the courses must be at the graduate level in Political Science.

2. A written comprehensive examination in one of the following five fields: Political Philosophy, Comparative Politics (Developed Countries), Comparative Politics (Developing Countries), Canadian Government and Politics, International Relations; or an Oral Qualifying Examination for those students wishing to proceed to the Ph.D. program.

3. A thesis to demonstrate proficiency in research.

Candidates for the M.A. degree follow a program approved on an individual basis by the Department. All students who wish to be considered for the Ph.D. program are evaluated on the basis of their M.A. program. Only a small number of students are permitted to go on for their doctorate. A pass for the M.A. degree does not necessarily imply permission to proceed to the doctorate.

F8.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

There are six requirements:

1. Ph.D. students are required to take the equivalent of 6 one-term courses in addition to those they have taken at the M.A. level. Of these 6 courses, at least 3 must be at the 600 or 700 level in political science. By the time the student finishes his course work for the Ph.D., he must complete a total of at least three 700 level seminars in political science, including any taken in his M.A. year. The remaining courses may be chosen from among approved courses in Political Science or related disciplines, but should be at the graduate level whenever possible. With the approval of the Certification Committee, a student may take a reading course on some special subject as part of his program, providing he is able to find a faculty member who is willing to direct his work. Students should note that whereas 65% is the minimum passing grade, doctoral students are expected to maintain an average of at least 70%.

2. Students will be expected to do course work in three of the five fields offered by the Department. In two of these fields, the student will be required to write a comprehensive examination (see below), while in the third field the requirement will be met by the successful completion of two courses or seminars at the graduate level. In the third field the student must have his course program approved by the coordinator for the areas in which he is specializing.

3. Ph.D. students are required to take 2 written comprehensive examinations from among the following fields: (1) Canadian Government and Politics; (2) Comparative Politics (Developing Countries); (3) Comparative Politics (Developed Countries); (4) Political Philosophy; (5) International Relations. No student may write the comprehensives until he has completed his course work. The exams may be written together or separately. They are given each September, January and May.

4. Ph.D. students are required to take an oral comprehensive examination after they have passed their written comprehensives.

5. The student must pass an examination in unseen translation from two modern languages (other than English) at the elementary level or from one modern language (other than English) at the advanced level.

6. Dissertation.

F8.3 COURSES FOR HIGHER DEGREES

160-601D. M.A. GRADUATE GENERAL WRITTEN EXAMINATION.

160-612B. EMPIRICAL METHODS. Fundamental principles of empirical research, in which the emphasis will be placed on acquainting the student with the techniques most commonly used by political scientists. The topics include the design of research projects, procedure in carrying out research, problems of measurement, survey research, scaling, data processing, and data analysis. PROFESSOR VAILLANCOURT

*160-613A. SELECTED THEMES IN POLITICAL PHILOSOPHY. This course studies the approaches of two important writers to the events of their time. Following an analysis in detail of specific texts, members of the seminar will present interpretive theoretical papers based on contextual, historical research. PROFESSOR SHINGLER

160-614A. CLASSICAL POLITICAL THOUGHT. An examination of the origins of the Western tradition of political philosophy, with concentration on the major classical texts: Plato's

Republic and selected Platonic dialogues, Aristotle's *Nichomachean Ethics,* Cicero's *De Re Publica.*
PROFESSOR SHINGLER

160-615B. POLITICAL PHILOSOPHY. A textual examination of selected writers dealing with important themes in the mediaeval and early modern periods: the nature of justice and law; the meaning of reason and knowledge; the basis of order and authority; the relationship of man to nature; the interpretation of history.
PROFESSOR SHINGLER

160-616A. MODERN POLITICAL ANALYSIS. An introduction to the concepts underlying modern approaches to the study of politics. The scope of the discipline will be delineated and the foundations of empirical research, including the philosophy and methodology of science, especially as these apply to social science, will be considered. Various alternatives and critiques will be presented and evaluated.
PROFESSOR WALLER

*160-617B. PROBLEMS IN POLITICAL THEORY. Analysis of selected themes in political theory drawing upon recent developments in contemporary philosophy and psychology. Topics will include: The concept of the self-other relation in theories of politics, the character of political action in contemporary political structures, functions of symbols and myths in political theory and action, and the study of various modes of exploring the human condition.
PROFESSOR SARF

160-619B. FUNDAMENTAL CONCEPTS OF POLITICAL THEORY. This seminar will explore the philosophical and human foundations of political-theoretical activity, and consider political theory as a tradition. Questions concerning the nature of theoretical perception, the intentions which motivate political theorists, the different genre of theories, and the basic purposes, nature and forms of theory shall be considered. Both modern and classic texts will be used to explore the nature of theoretical discourse and the problematics of man and society to which political theory is a response.
PROFESSOR SARF

160-621A. THE CANADIAN POLITICAL PROCESS. A critical evaluation of concepts drawn from comparative politics and behavioural studies and their application to selected problems in Canadian politics. The topics include political socialization and political culture, political communications, élites, political groups, political protest, political leadership and national integration.
PROFESSOR PALTIEL

157-626D. PROBLEMES POLITIQUES DU QUEBEC. Les participants seront appelés à étudier certains problèmes actuels de la politique québécoise.
PROFESSOR LATOUCHE

160-628A. COMPARATIVE POLITICS. Selected aspects of European politics will be investigated.
PROFESSOR BROWN

160-647A. POLITICAL DEVELOPMENT IN THE NEW NATIONS. Contributions to the study of political development, major aspects of the development process in the new nations; traditional society and social mobilization, group conflict and national integration, institution-building, systematic goals and performance.
PROFESSOR NAYAR

*160-648B. SOCIAL STRATIFICATION AND POLITICAL POWER. Elite theory, the relationship of social status and political power, political leadership and political recruitment; survey of major theories and empirical research; emphasis on comparison between traditional, developing and industrial societies and liberal-democratic, authoritarian and communist systems.
PROFESSOR NAYAR

*160-649B. THE MASS APPROACH TO POLITICAL DEVELOPMENT: CHINA. An examination of the strategy of political and socio-economic development in contemporary China. Specific attention will be devoted to cultural and ideological foundations of socialization, mechanisms of policy adjustment, political and Party organization, decentralization, bureaucracy, and concepts such as telescoping of historic stages, goal motivation, and model emulation.
PROFESSOR NOUMOFF

160-671B. THE THEORY AND EXPERIENCE OF REGIONAL INTEGRATION. (Given in conjunction with 166-622B.) This course will discuss 'Communications in International Politics'. Topics to be examined are: the processes of memory, perception, and assessment in government and the mass media, using crisis and non-crisis situations; the use of the media in intergovernmental bargaining and as mirrors of individual societies.
PROFESSOR HASKEL

160-678A. RECENT THEORY IN INTERNATIONAL RELATIONS: STATE BEHAVIOUR. The seminar will explore representative theoretical and empirical studies which examine components of the foreign policy-making process. An attempt will be made to relate these components to foreign policy behaviour and to assess the utility and validity of alternative theoretical approaches.
PROFESSOR B. STEINBERG

160-679A. INTERNATIONAL CONFLICT. An examination of the literature dealing with international conflict. Topics to be covered include the sources of international conflict, bargaining, strategies and dynamics of conflict, crisis behaviour, and the management of international conflict.
PROFESSOR NOBLE

160-690A, B. READING IN POLITICAL SCIENCE. A graduate student may take one reading course per academic year in a particular field and under the supervision of a member of staff.

160-700D. Ph.D. ORAL QUALIFYING EXAMINATION.

160-701D. Ph.D. GRADUATE GENERAL WRITTEN EXAMINATION, First Field.

160-702D. Ph.D. GRADUATE GENERAL WRITTEN EXAMINATION, Second Field.

F8.3.1 **SEMINARS**

160-715B. POLITICAL THEORY. A seminar in contemporary political science, with reference also to political philosophy and to the psychological bases and sociological affiliations of politics.
PROFESSOR TAYLOR

160-721B. FEDERALISM. This seminar will deal with the historical evolution of the federal concept, traditional approaches to federalism offered by K. C. Wheare and his followers, and several new approaches including "cooperative federalism" (Vile), federalism as a "process" (Friedrich), federalism as a "bargain" (Riker), the unification and de-unification of elites (Etzioni), the federal political systems and federal societies (Livingston and Watts), and consociational systems (Lijphart). These approaches will be applied in a workshop to relevant problems in Canada and other societies. PROFESSOR MALLORY

160-724B. AFRICAN POLITICS. The seminar deals with selected problems in contemporary comparative African politics and political thought. The work of the seminar centres around research papers prepared and presented by participants. PROFESSOR KUNZ

*160-725B. CULTURAL DUALISM. A seminar dealing with various aspects of French-English relationships in Canada.

*160-726A. CANADIAN LEGISLATURES. The seminar will examine, in the light of recent research, the role of parliament and provincial legislatures in Canada in the policy-making process. Recent important changes in machinery (e.g. the expansion of committees) will be evaluated in the light of the changing character of Canadian politics and of questions of constitutional theory. PROFESSOR MALLORY

160-728B. COMPARATIVE POLITICS. The topics treated will vary from year to year. As far as possible, specific research interests of students will be taken into account.
PROFESSOR BROWN

157-742B. ECONOMIC AND POLITICAL DEVELOPMENT. This course will discuss the continuing Canadian problems of unemployment, inflation and foreign ownership, the Harrod question, Are monetary and fiscal policies enough?, the necessary integration of all elements of economic policy including trade, exchange rate, competition, resource and growth objectives.
PROFESSOR KIERANS

160-745B. MACHINERY OF GOVERNMENT. This seminar will consist of a detailed examination of a problem in Canadian government and administration. Problems will include topics dealing with cabinet government, parliamentary organization, federalism, public administration and the impact of political forces on them.
PROFESSORS MALLORY, KIERANS AND WELDON

160-747B. POLITICS OF DEVELOPING AREAS. The political systems, the process of political modernization, and political problems of selected developing states. This seminar is also listed in the Centre for Developing Area Studies. PROFESSOR NAYAR

*160-748B. SOUTH ASIAN POLITICS. An investigation into key political problems of India and Pakistan in their social and economic setting. PROFESSOR NAYAR

*160-749A. ASIAN POLITICAL PHILOSOPHY. A graduate seminar designed to permit students with some training in either Asia or Philosophy to examine either the historic or contemporary policy of East, South, South-East, or West Asia. PROFESSOR NOUMOFF

*160-775B. STRATEGY AND ARMS CONTROL. A seminar dealing with recent strategic theories of flexible response and limited war, the problems of nuclear testing and proliferation, and Western and Soviet strategic thought. The politics and economics of defence organization and alternative methods of arms control and disarmament will be analyzed.
PROFESSOR J. STEIN

*160-778B. COMPARATIVE ANALYSIS OF FOREIGN POLICY. *(Prerequisite:* 160-678A.) A research seminar dealing with selected topics in foreign policy. Students will be expected to undertake original research from primary sources within their areas of interest.
PROFESSOR J. STEIN

160-779B. COMPARATIVE ANALYSIS OF INTERNATIONAL CONFLICT. *(Prerequisite:* 160-679A or its equivalent.) A research seminar devoted to the analysis of conflict in the contemporary international system. Students will be expected to test hypotheses concerning the sources, strategies and dynamics of international conflict by undertaking original research in their areas of interest.
PROFESSOR NOBLE

160-780A/781B. READING SEMINAR. A research seminar on a topic that is not covered in the regular seminars, but which is of interest to a group of students and a faculty member. The exact topic for the research papers will be determined by mutual agreement among students and faculty members involved. STAFF

160-799D. Ph.D. ORAL COMPREHENSIVE EXAMINATION.

F8.3.2 UNDERGRADUATE COURSES FOR QUALIFYING YEAR AND GRADUATE STUDENTS

When it is appropriate to his program, a graduate student may take an undergraduate course approved by his adviser. These courses are listed in the *Announcement of the Faculties of Arts, Science* and in the annual course list prepared by the Department in the Fall.

F8.4 GRADUATE PROGRAMS IN COOPERATION WITH OTHER DEPARTMENTS

The following programs for candidates with specialized interests are offered in cooperation with other Departments in the Faculty of Graduate Studies. The basic requirements of the Department of Political Science must of course be met by all candidates.

1. Community Planning

An inter-departmental committee of the Faculty of Graduate Studies offers a program of graduate training for those wishing to specialize in Community Planning. The committee represents the Departments of Architecture, Engineering, Geography, Sociology, and Political Science. Specialized instruction in the form of a graduate seminar, courses of instruction, and laboratory work is offered by qualified members of the Departments concerned. Candidates are required to meet the degree requirements of the departments in which they are registered.

2. Islamic Studies

Students may, with the approval of the Department and of the Institute of Islamic Studies, take certain courses offered in Islamic Studies as part of a program emphasizing the problems of the Islamic World. Students will be required to meet the normal degree requirements of the Department, together with appropriate courses in Islamic Studies, and write their theses on problems in some area of political science relevant to Islamic Studies. In certain cases a graduate seminar in Islamic Studies may be substituted for one of the seminars required to be taken in the Department. In general, the above program may be permitted for students in Political Science whose main field of study is Comparative Politics, International Relations, or Political Philosophy.

F 9 PSYCHOLOGY

F9.1 STAFF

Professors — G. A. FERGUSON *(Chairman);* DALBIR BINDRA; D. G. DOEHRING; VIRGINIA DOUGLAS; D. O. HEBB; W. E. LAMBERT; R. B. MALMO; RONALD MELZACK; BRENDA MILNER; P. M. MILNER; E. G. POSER; M. S. RABINOVITCH

Associate Professors — A. S. BREGMAN; MICHAEL CORBALLIS; J. A. CORSON; D. C. DONDERI; GEORGE GEIS; M. L. GOLDSCHMID; RABINDRA KANUNGO; JOHN MACNAMARA; A. A. J. MARLEY; R. O. PIHL; J. O. RAMSAY; MURIEL STERN; G. R. TUCKER; BLOSSOM WIGDOR

Assistant Professors — J. F. CAMPBELL; SUSAN CAMPBELL; C. E. PASCAL; W. E. PIPER; T. R. SHULTZ; D. TAYLOR; NORMAN WHITE

Lecturer — OLGA FAVREAU

Sessional Lecturers — B. BLIDSTEIN; MARGARET GOLICK; R. KACHANOFF; A. SCHLEIPER

Interneship Supervisors — N. GREENBERG; ERIKA GUTBRODT; A. SURKIS

F9.2 PROGRAMS

Graduate work in the Department of Psychology follows two main lines: experimental-theoretical and applied. Work in experimental-theoretical psychology leads to the M.A., M.Sc. and Ph.D. degrees in human experimental, physiological, personality, social, child, psycholinguistics, quantitative, and psychological research in relation to education. Work in applied psychology leads to the Ph.D. degree in clinical psychology, and the M.Sc. (Applied) degree program is offered in certain particular fields.

Facilities for advanced research in a variety of fields are available within the Department itself. In addition, arrangements with the Departments of Psychology at the Allan Memorial Institute, Montreal Children's Hospital, Queen Mary Veterans' Hospital, the Douglas Hospital, and Jewish General Hospital, permit graduate students to undertake research in the hospital setting.

For full information about all programs, financial aid, and for application forms, contact the Graduate Admissions Secretary, Department of Psychology, McGill University, P.O. Box 6070, Montreal 101, Canada. Telephone 392-5742.

F9.3 REQUIREMENTS

F9.3.1 ADMISSION

Admission to graduate work will depend on an evaluation of the student's research interests and aptitude for original contributions to knowledge or for professional contributions in the applied field. The usual requirement for admission is an honours or majors degree (B.A. or B.Sc.) in Psychology. This includes an introductory course plus six full courses (each equivalent to six semester hours). Experimental psychology, the theoretical development of modern ideas in psychology, and statistical methods as applied to psychological problems (equivalent to an introductory course) are essential. A knowledge of elementary physiology, physics or chemistry, and modern developments in other related biological or social sciences is desirable. An applicant who holds a Bachelor's degree but who has not met these usual requirements should consult a faculty member in his or her area of interest to determine which (if any) courses must be completed before the application can be considered. A student with insufficient preparation may qualify for graduate work by registering in the Faculty of Arts or the Faculty of Science, and following an appropriate course of study. Such registration requires the permission of the Department; the Department will not recommend the registration of qualifying students in the Faculty of Graduate Studies and Research.

NOTE: Applicants should submit to the Graduate Admissions Secretary by February 1: a completed application form, two copies of the personal academic background form, two copies of all university transcripts, two letters of recommendation, Miller Analogies and/or Graduate Record Examination scores, and a personal letter, outlining their experience, interests and objectives in psychology. Applicants should note that the deadline for many scholarships and fellowships is two to three months earlier than the February deadline.

F9.3.2 REQUIREMENTS FOR THE M.A. AND M.Sc. DEGREES

Candidates must demonstrate a sound knowledge of modern theory, of its historical development, and of the logic of statistical methods as used in psychological experiment. They will be expected to have an understanding of the main lines of current work in other than their own particular field of specialization.

All candidates must take courses 204-650A, 204-651B and 204-660D, and in addition any other course specified by the Department. The primary concern of the candidate, however, is his thesis. For this the exploratory work, at least, should get under way early in the year. A comprehensive written or oral examination will be held which, in

conjunction with the thesis itself, will determine the candidate's final standing for the degree.

F9.3.3 REQUIREMENTS FOR THE Ph.D. DEGREE

The candidate for the Ph.D. degree in the theoretical-experimental program must demonstrate a broad scholarship, mastery of current theoretical issues in psychology and their historical development, and a detailed knowledge of his special field. Preliminary examinations will be held at two stages; one at the conclusion of the Master's year and one at the conclusion of the following year. These examinations may be written or oral, or both, at the discretion of the Department. These examinations will include a general paper on modern theoretical issues and history, and a special paper on one of the following: comparative and physiological psychology, learning and perception, social psychology and personality, measurement, and developmental psychology.

Candidates for the Ph.D. degree in clinical psychology must demonstrate a high standard of scholarship in psychology and aptitude for the professional application of psychological knowledge. The clinical program is designed primarily to train senior personnel for work in hospitals and clinics. A number of avenues of specialization are, however, possible. Some students may wish to prepare themselves for careers in university teaching or clinical research; others may have an interest in behaviour disorders in the fields of developmental or educational psychology. The time necessary to attain the degree is four years beyond the B.A. or B.Sc. degrees. No intermediate or terminal M.A. or M.Sc. degrees are awarded to students in the Ph.D. clinical program. All students are required to write a thesis and demonstrate research capabilities.

The Department of Psychology does not ordinarily require an examination in a foreign language.

F9.4 COURSES AND SEMINARS

204-454D. LABORATORY METHODS IN PSYCHOBIOLOGY.

204-455D. RESEARCH METHODS IN PSYCHOLINGUISTICS.

204-601D. Reference number for comprehensive examination written by candidates for the M.A., M.Sc., or M.Sc. (Appl.) degree.

204-615D. INTELLIGENCE AND PERSONALITY. (3 hours)

204-630A. PSYCHOPATHOLOGY. (1½ hours)

*204-635D. ADVANCED EDUCATIONAL PSYCHOLOGY. (3 hours)

204-640D. DESIGNING, DEVELOPING AND EVALUATING INSTRUCTIONAL SYSTEMS. (3 hours)

204-641D. BEHAVIOUR DEVIATIONS. (3 hours) Appraisal and Modification.

204-650A. ADVANCED STATISTICS I. A course in advanced statistics with specialization in experimental design. (3 hours)

204-651B. ADVANCED STATISTICS II. A course in advanced statistics with specialization in regression techniques. (3 hours)

204-660D. PSYCHOLOGICAL THEORY. (3 hours) Seminar designed as an introduction to more advanced graduate courses.

204-670D. RESEARCH PROBLEMS IN CLINICAL PSYCHOLOGY. (1 hour)

204-701D. Reference number for comprehensive preliminary Ph.D. examinations.

204-702F. SUMMER INTERNESHIP — JUNIOR.

204-703F. SUMMER INTERNESHIP — SENIOR

204-704D. SPECIALIZED PRACTICUM.

204-705D. Reference number for research project of M.Sc. (Appl.) candidates.

204-710D. ADVANCED EXPERIMENTAL PSYCHOLOGY. (2 hours)

204-715D. COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY. (2 hours)

204-740D. QUANTITATIVE METHODS IN PSYCHOLOGY. (2 hours)

204-770D. ADVANCED SEMINAR ON CLINICAL PROBLEMS. (2 hours)

204-780D. SPECIAL TOPICS IN CLINICAL PSYCHOLOGY. (2 hours)

F 10 DEPARTMENT OF SOCIOLOGY

F10.1 STAFF

Professors — DAVID N. SOLOMON *(Chairman);* RICHARD HAMILTON; MAURICE PINARD; IMMANUEL WALLERSTEIN; WILLIAM A. WESTLEY

Associate Professors — ROGER G. KROHN; DONALD VON ESCHEN

Assistant Professors — MICHAEL CARROLL; MARLENE DIXON; PHILIP EHRENSAFT; JOSEPH LELLA; PRUDENCE RAINS; GERTRUDE ROBINSON; MALCOLM SPECTOR

F10.2 REQUIREMENTS

The Department offers training leading to the degrees of Master of Arts and Doctor of Philosophy in Sociology. For admission to candidacy, applicants must have a Bachelor's degree based upon a record of at least second class standing and preferably an undergraduate specialization in Sociology equivalent to the honours B.A. degree of McGill University. For a detailed description of courses open to graduates and undergraduates, and of preparation required of McGill University honours students, candidates should consult the Announcement of the Faculties of Arts, Science.

F10.2.1 ADMISSION

For an application to be considered, it is essential that applicants submit with their applications the results of the Aptitude Test of the Graduate Record Examination. In addition, applicants who have specialized in Sociology and who wish to be considered for admission directly into the one-year M.A. program or into the Ph.D. program must also submit the results of the Advanced Test in Sociology of the Graduate Record Examinations. Arrangements to take these examinations should be made directly with the Educational Testing Service, Box 955, Princeton, New Jersey 08540, USA.

In addition, each applicant is asked to submit two letters of recommendation and a transcript of his university-level grades. The deadline for completed applications is March 1.

Candidates who lack sufficient preparation in Sociology, but whose academic record justifies eventual admission to the graduate program, must register for a qualifying year during which they are required to take courses to widen their knowledge of Sociology. These courses are normally those which are open to graduate and undergraduate students. Candidates must achieve at least second class standing in these courses and an average across all courses of at least 75 per cent; in general, they must, in the opinion of the Department, have achieved sufficient preparation in the subject matter of Sociology before they will be allowed to proceed further into graduate work. Courses in statistics, research methods and sociological theory are required of all qualifying candidates.

A number of teaching and research assistantships are available to qualified graduate students. Students who wish to be considered for such assistantships should inform the Graduate Adviser of the Department. In most circumstances, students who accept assistantships may expect to spend longer than the minimum time to complete their degrees.

F10.2.2 REQUIREMENTS FOR THE M.A. DEGREE

The program of study is designed to give the candidate an advanced understanding of some major fields of Sociology and to provide him with research experience through the preparation of a short thesis. A minimum of one year of graduate study is required.

The program will normally include three courses per term. For some candidates, additional courses may be required if, in the opinion of the Department, the candidate lacks sufficient preparation. A thesis is required of all candidates. In addition, candidates are required to demonstrate a knowledge of some particular area in Sociology by passing an examination in that area.

Further details about the requirements are available and can be obtained from the Graduate Secretary in the Department.

F10.2.3 REQUIREMENTS FOR THE Ph.D. DEGREE

A minimum of three years of study is required. The first year of the Ph.D. program is identical with the program for the M.A. degree. Admission to study for the Ph.D. degree is therefore usually granted to students only after they have attained the M.A. degree in Sociology with high standing. They are then permitted to proceed to the Ph.D. degree in two further years of study subject to the examination, language and thesis requirements mentioned below. Only students who are very well prepared can expect to complete the total program in the minimum time.

An applicant who has received a master's degree at a university other than McGill should submit a copy of his thesis or evidence of equivalent research experience with his application for admission.

F10.2.3.1 Examination Requirements

Candidates must take four examinations. These will include examinations in:

(1) sociological theory, and

(2) three of the special fields of Sociology

One of these special fields can be that on which the candidate was examined in the M.A. program if that examination was passed with distinction.

These examinations must be completed and the student's candidacy for the degree established no later than the end of the third year of graduate study.

F10.2.3.2 Language Requirement

Candidates must demonstrate ability to read French with high proficiency or to read another language which is relevant to the candidate's field of research. The language requirement should be met by the end of the third Ph.D. year.

F10.2.3.3 Thesis Requirement

Candidates are required to submit a thesis on an approved topic. Approval of the topic will usually follow submission of a research proposal. Further details on the requirement and regulations for theses and for the fields in which the Department is prepared to direct research may be obtained from the Graduate Secretary of the Department.

F10.3 COURSES AND SEMINARS

All three and four hundred level courses listed in the Faculty of Arts announcement are open to graduate students as preparation and recommended prerequisites for participation in research seminars. Students must complete a three or four hundred level course or its equivalent in a subject area as a prerequisite for a seminar in that area.

*166-603A.	SEMINAR: DEV/GROUNDED THEORY & ORGANIZATIONAL CHANGE.	PROFESSOR LELLA
*166-612A.	SEMINAR: RADICAL SOCIOLOGY.	PROFESSOR DIXON
*166-615A.	SEMINAR: THE SOCIOLOGY OF MEDICINE.	PROFESSOR SOLOMON
*166-618A.	SEMINAR: THE SOCIOLOGY OF WORK.	PROFESSOR WESTLEY
*166-620B.	SEMINAR: SOCIAL MOVEMENTS.	PROFESSOR VON ESCHEN
166-622B.	SEMINAR: PROBLEMS IN MASS COMMUNICATIONS.	PROFESSOR ROBINSON
166-627B.	SEMINAR: POLITICAL SOCIOLOGY.	PROFESSOR HAMILTON
*166-631B.	SEMINAR: CORPORATIONS & SOCIETY.	PROFESSOR EHRENSAFT

*166-634B. SEMINAR: SOCIAL PSYCHOLOGY.

166-640A. RESEARCH: QUALITATIVE METHODS OF SOCIAL RESEARCH.
PROFESSOR SPECTOR

166-654B. SEMINAR: QUANTITATIVE METHODS OF SOCIAL RESEARCH.
PROFESSOR PINARD

*166-661B. SEMINAR: SOCIOLOGY OF KNOWLEDGE. PROFESSOR KROHN

*166-671A. SEMINAR: DEVIANCE & SOCIAL CONTROL. PROFESSOR RAINS

*166-672B. SEMINAR: SOCIAL CHANGE. PROFESSOR WALLERSTEIN

166-680D. SEMINAR: APPLIED SOCIOLOGY & ALTERNATIVE ORGANIZATIONS.
PROFESSORS SOLOMON, WESTLEY & LELLA

166-681D. SEMINAR: SOCIAL MOVEMENTS. PROFESSORS PINARD & VON ESCHEN

166-682D. SEMINAR: ECONOMIC SOCIOLOGY. PROFESSORS KROHN & EHRENSAFT

166-683D. SEMINAR: WORLD SYSTEM. PROFESSORS WALLERSTEIN, DIXON & EHRENSAFT

166-684D. SEMINAR: DEVIANCE & THE LABELLING PERSPECTIVE.
PROFESSORS RAINS & SPECTOR

166-720A, B. READING IN SOCIAL THEORY. STAFF

**Courses offered in previous years.*

McGill University

FACULTY OF GRADUATE STUDIES AND RESEARCH

SECTION "G" EDUCATION

1973-74

NOTE: Courses marked with an asterisk (*) are not offered in 1973-74. The letters, which form part of course numbers, have the following significance:

A — Fall term course
B — Spring term course
C — Summer term course
D — Full session course (Fall and Spring terms)

The official McGill mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada.

Legal Deposit II 73.

G1 EDUCATION

G1.1 STAFF

Professors — L. B. BIRCH *(Macdonald Professor of Education and Director of Graduate Studies);* C. W. HALL *(Dean);* R. EDWARDS; M. GILLETT; R. MAGNUSON; G. H. McKAY; E. PEDERSEN; R. E. WILKINSON

Associate Professors — D. A. BURGESS *(Associate Dean);* M. BURNS; M. BUTEAU; J. CHOMAY; J. M. CRAM; W. FLOCH; M. FRITH; F. P. GREENE; J. K. HARLEY; N. HENCHEY; THE REV. J. P. HILTON *(Associate Dean);* J. K. JOBLING; V. KLISSOURAS; R. LAVERY; H. LEARD; J. P. LIPKIN; J. LOBELLE; T. MAROUN; S. RAPAGNA; W. RYAN; W. SEARLES; D. C. SMITH; D. SOKOLYK; F. STINSON; H. A. STUTT; R. TALI; W. M. TALLEY; E. WINTER

Assistant Professors — N. COCCALIS; F. DUMONT; R. GARDNER, M. GREENISEN; J. HARRIS; A. HUM; G. B. ISHERWOOD; R. LAVERS; D. Q. MARISI; T. MAROUN; N. McCARDELL; G. I. NEIL; S. NEMIROFF; J. PARK; P. QUILY; H. SHANTZ; B. M. SHORE; A. E. WALL; J. WALL; E. WATTERS

G1.2 GENERAL INFORMATION

The Faculty of Education offers programs leading to M.A., M.Ed. and D.Ed. degrees. The M.A. degree provides opportunities for suitably qualified teachers to deepen their knowledge and to gain some facility in research in a major area of education. At present the areas in which students may elect to specialize are Educational Administration, Comparative Education, Educational Psychology, Educational Guidance, Physical Education, History and Philosophy of Education. Students complete their degree by presenting a thesis in the area of their specialization.

The structure of the M.Ed. degree is different since its purpose is to enable teachers to gain added competence in a professional field, e.g., in the teaching of a specific school subject or in counselling, administration, special education or reading. The courses leading to M.Ed. degrees in teaching subjects such as mathematics or geography are taken partly in the subject department concerned and partly in the Faculty of Education. There is no formal thesis in the M.Ed. degree programs but students may submit a paper or project-report as part of their work, or, in some cases, they may have a period of internship.

The Faculty has one formal doctoral program. This is a professional degree in Counsellor Education which is intended to enable selected students who have already attained the level of the M.Ed. in Counsellor Education to continue their studies in breadth and depth and to carry out a significant inquiry to be reported as a doctoral thesis.

At present the Faculty of Education does not offer a formal program leading to a Ph.D. However, under the Regulation set out in paragraph 21 of the Calendar of the Faculty of Graduate Studies and Research it is possible for exceptionally well qualified candidates to proceed to the degree of Ph.D. by making direct application to the Dean of the Faculty of Graduate Studies and Research. Such candidates should have a very clear idea at the outset of the area of their prospective research.

G1.2.1 ENTRANCE REQUIREMENTS FOR M.A. AND M.Ed. DEGREES

Candidates must normally hold an undergraduate degree from a recognized university, with second class standing in at least one continuation subject, and also a Class I Teaching Diploma, or its equivalent, with a second class standing, valid in the Province of Quebec. Exceptionally well-qualified candidates may sometimes be admitted to masters' degrees in certain departments before they have completed the two years of probationary teaching necessary for the Class I Diploma. The holders of McGill Honours,

or similar degrees in appropriate disciplines such as Philosophy, History or Psychology, may be admitted directly to M.A. programs offered in the educational aspects of the same discipline, but the master's degree awarded to such candidates does not certify them to teach in public schools.

Certain departments have additional entrance requirements. These are noted after the list of courses in the departments concerned.

G1.2.2 LENGTH OF STUDY FOR M.A. AND M.Ed. DEGREES

Most programs can be completed by full time or half time study or by a mixture of both. A Summer School program is offered but it is not normally possible to complete degrees wholly by summer attendance.

All masters' degrees in the Faculty of Education take two years of full time study, or the equivalent in Summer School and part time work, to complete.

G1.2.3 ENTRANCE REQUIREMENTS FOR D.Ed. DEGREE IN COUNSELLOR EDUCATION

Candidates for the Doctoral program in Counsellor Education must hold the degree of M.Ed. (Counsellor Education) of McGill University, or its equivalent, and have maintained good second class standing in the degree. In addition applicants for the program must supply personal and educational data, take prescribed tests and engage in an interview procedure. For otherwise acceptable candidates who do not meet the academic requirements, courses of qualifying study may be prescribed.

There is no second language requirement.

G1.2.4 LENGTH OF STUDY FOR D.Ed. DEGREE IN COUNSELLOR EDUCATION

A minimum period of two years of full time study, including the summer session between the two academic years, is required to complete the D.Ed. degree.

G1.2.5 FEES

Students must register at least once each year until they graduate and must be registered for the Session in which they graduate.

M.A.	
Summer Sessions —	
Full Courses	$150.00
Half Courses	$ 75.00
Winter Sessions —	
Full Courses	$120.00
Half Courses	$ 60.00
Thesis Preparation Course	$200.00
M.Ed. TEACHING SUBJECT PROGRAMS	
Summer Sessions —	
Year I — Full Courses	$150.00
Half Courses	$ 75.00
Year II — Monograph	$300.00
Winter Sessions	
Year I — Full Time	$652.00
Full Courses	$120.00
Half Courses	$ 60.00
Year II — Monograph	$300.00
M.Ed. *(Except Teaching Subject Programs)*	
Summer Sessions —	
Full Courses	$150.00
Half Courses	$ 75.00
Winter Sessions —	
Full Courses	$120.00
Half Courses	$ 60.00
Internships	$300.00

D.Ed.

Summer Sessions —

Full Courses	$150.00
Half Courses	$ 75.00

Winter Sessions —

Year I — Full Time	$652.00
Year II — Full Time	$652.00

G1.2.6 **APPLICATIONS**

Applications for admission to the Faculty of Graduate Studies and Research for degrees in Education should be made to the *Director of Graduate Studies, Faculty of Education, McGill University, 3700 McTavish St., Montreal 112, P.Q.* Summer session and Winter session candidates in Counsellor Education, Educational Administration, Social Foundations of Education program and Teaching French as a Second Language are required to apply by March 1. Other candidates applying for admission for the first time and wishing to start in the Summer session must apply before April 1, and those interested in commencing studies in the fall must apply by July 3. Applications in some programs will close prior to these deadlines when all spaces have been filled.

NOTE: Admission to the Faculty of Graduate Studies and Research for graduate programs in Education is made by the Dean of the Graduate Faculty on the basis of undergraduate record and satisfactory professional training. Admission to the appropriate courses is made by the individual departments of the Faculty of Education, and where appropriate, by the departments concerned in other Faculties in consultation with the Faculty of Education.

G1.3 DEPARTMENT OF COUNSELLOR EDUCATION

Professor — Justine Harris, *Chairman*

G1.3.1 **M.A. COUNSELLOR EDUCATION**

G1.3.1.1 **Required Courses**

The following courses are offered by the Department of Educational Psychology.

414-602D. THE USE OF STATISTICS IN EDUCATIONAL PROCEDURES.

414-621D. THESIS PREPARATION. This course is offered jointly by the Departments of Educational Psychology and Counsellor Education.

The following courses are described in the M.Ed. Counsellor Education program.

412-602A, B. PHILOSOPHY OF GUIDANCE. (Half Course).

412-603A, B. THEORIES OF PERSONALITY. (Half Course).

412-605A, B. INTRODUCTION TO THEORIES IN COUNSELLING. (Half Course).

412-640A, B. ADOLESCENT DEVELOPMENT. (Half Course).

412-641A, B. PSYCHOLOGICAL TESTING. (Half Course).

G1.3.1.2 **Optional Courses**

With the approval of the Department, students must elect one half course from the Department of Counsellor Education and one full course from the Faculty of Education or other Faculties of the University.

G1.3.1.3 **Additional Entrance Requirements**

As for M.Ed. Counsellor Education.

G1.3.2 **M.Ed. COUNSELLOR EDUCATION**

The Department offers three majors: Elementary School Counselling, Secondary School Counselling and Student Personnel Services (College and University). Each applicant must select a major when making application.

G1.3.2.1 Required Courses Common to All Three Majors

412-602A, B. PHILOSOPHY OF GUIDANCE. (Half Course). Philosophical foundations of guidance; history, growth, and recent trends of the guidance movement. Orientation to the field in respect to the functions, scope, organization, and administration of counselling services.

412-603A, B. THEORIES OF PERSONALITY. (Half Course). Study and comparison of contemporary theories of personality. Emphasis upon theories having significance for counselling and assessment principles. Recent research in personality theory.

412-604A, B. DYNAMICS OF GROUP WORK. (Half Course). Study of group organization, with opportunity to develop skills in group leadership. Interpretation of group interaction and typical roles played by members in groups.

412-605A, B. INTRODUCTION TO THEORIES IN COUNSELLING. (Half Course). Correlation and interpretation of counselling data and the study of individual cases. Emphasis on the process in counselling, the counselling relationship, and counselling techniques.

412-611A, B. INDIVIDUAL TESTING. (Half Course). This course is intended to make the student familiar with the individual tests in common use and to give him some degree of proficiency in their application. Special emphasis will be placed on the Binet and Wechsler scales. There will be opportunities for diagnostic testing under supervision.

414-610A, B. EDUCATIONAL MEASUREMENT. (Half Course). See M.A. Educational Psychology.

G1.3.2.2 Required Courses in Elementary School Counselling Major

412-620A, B. ADVANCED CHILD PSYCHOLOGY. (Half Course). Study of the growing person from birth to pre-adolescence with emphasis on the background and methods as well as research on the principles of child development, disturbances in child development, various areas of development, and characteristics of different age levels.

412-621A, B. PSYCHOLOGICAL TESTING IN THE ELEMENTARY SCHOOL. (Half Course). Group testing in the elementary school, including readiness, reading, diagnostic, intelligence, interest, aptitude, and other tests.

412-622A, B. TRENDS IN ELEMENTARY SCHOOL COUNSELLING. (Half Course). Social, psychological, educational factors in vocational development of elementary school children. Implications of the elementary curriculum for career planning and decision making. Functions, relationships, organization, and administration of guidance in elementary education.

412-623A, B. INTRODUCTION: THE EXCEPTIONAL CHILD. (Half Course). Nature, identification, cause, and treatment of children's disabilities and their influence on emotional, social, educational, and vocational adjustment. Special services required for exceptional children to develop to their maximum capacities.

412-624D. PRACTICUM IN ELEMENTARY SCHOOL COUNSELLING. Practices in counselling. Adapting to counselling sessions person to person, educational, occupational, and social relationships. Practice with individual cases.

412-639D. INTERNSHIP IN ELEMENTARY SCHOOL COUNSELLING. (One Full Year). Study, observation, and practice at respective levels in selected settings; integration of theory and practice through Faculty supervision of experience, group seminar, and individual conferences.

G1.3.2.3 Required Courses in Secondary School Counselling Major

412-640A, B. ADOLESCENT DEVELOPMENT. (Half Course). Normal development of adolescents through young adulthood. Problems and concerns of adolescence which occur with physical, social and personal developments, in the context of family and school adjustment.

412-641A, B. PSYCHOLOGICAL TESTING. (Half Course). Theory and application of group tests appropriate for adolescents and adults. Specific instruments; intelligence, aptitude, interest and personality, analyzed in terms of basic concepts, reliability, validity, and practical utilization.

412-642A, B. INFORMATION SERVICES IN THE SECONDARY SCHOOL. (Half Course). Procedures and systems of utilizing and communicating social, educational, and occupational information and materials. Structure of occupations; theories of vocational development.

412-663A, B. ORGANIZATION AND ADMINISTRATION OF SCHOOL PERSONNEL SERVICES. (Half Course). The functions, relationships, organization, and administration of guidance services in the secondary school and student personnel services.

412-644D. PRACTICUM IN SECONDARY SCHOOL COUNSELLING. See course description for 412-624D in the Elementary School Counselling Major.

412-659D. INTERNSHIP IN SECONDARY SCHOOL COUNSELLING. (One Full Year). See course description for 412-639D in the Elementary School Counselling Major.

G1.3.2.4 Required Courses in Student Personnel Services Major

412-640A, B. ADOLESCENT DEVELOPMENT. (Half Course). See course description in Secondary School Counselling Major.

412-641A, B. PSYCHOLOGICAL TESTING. (Half Course). See course description in Secondary School Counselling Major.

412-662A, B. INFORMATION SERVICES IN STUDENT PERSONNEL WORK. (Half Course). See course description for 412-642A, B in the Secondary School Counselling Major.

412-663A, B. ORGANIZATION AND ADMINISTRATION OF SCHOOL PERSONNEL SERVICES. (Half Course). See course description in Secondary School Counselling Major.

412-664D. PRACTICUM IN STUDENT PERSONNEL COUNSELLING. See course description for 412-624D in the Elementary School Counselling Major.

412-679D. INTERNSHIP IN STUDENT PERSONNEL COUNSELLING. (One Full Year). See course description for 412-639D in the Elementary School Counselling Major.

NOTE: The program more than meets the certification requirements of the Provincial Department of Education, and of the Corporation of Guidance Counsellors of Quebec.

G1.3.2.5 Additional Entrance Requirements

1) Normally, the first step is to secure an interview with the Chairman of the Department. This may be waived for prospective students residing at a great distance from the University.

2) Additional forms must be filed for admission to the Department.

3) Each student is required to take a battery of standardized tests. This battery is administered twice annually in the Department.

4) The Miller's Analogies Test.

5) The Graduate Record Examination (Verbal and Quantitative elements).

G1.3.3 D.Ed. COUNSELLOR EDUCATION

The Department offers three majors: Elementary School Counselling, Secondary School Counselling and Student Personnel Counselling (College and University). Each applicant must select a major when making application.

The offerings in the doctoral program consist of courses in three areas: Foundations of Education, Related Disciplines, and Counselling Psychology.

G1.3.3.1 Foundations of Education

Each candidate, in consultation with the Department, will select a minimum of two courses from the following:

†411-642D. DEVELOPMENT AND ADMINISTRATION OF THE SCHOOL CURRICULUM.

413-617D. HISTORICAL FOUNDATIONS OF CONTEMPORARY EDUCATION.

413-627D. PHILOSOPHIC ANALYSIS OF THE PROBLEMS OF EDUCATION.

414-635D. STUDIES IN EDUCATIONAL PSYCHOLOGY: LEARNING AND INTELLIGENCE.

†Descriptions for these courses may be found in the programs of the appropriate Departments.

G1.3.3.2 Related Disciplines

Each candidate, in consultation with the Department, will select one or more full courses from offerings in related disciplines available in the University.

G1.3.3.3 Counselling Psychology

All candidates will take the following courses:

412-620A, B. ADVANCED CHILD PSYCHOLOGY. (Half Course). Study of the growing person from birth to pre-adolescence with emphasis on the background and methods as well as research on the principles of child development, disturbances in child development, various areas of development, and characteristics of different age levels.

412-709D. ADVANCED THEORY: COUNSELLING MODELS AND SYSTEMS AND SMALL GROUP COUNSELLING. Advanced study of the counselling relationship and process with comparison between the contemporary models and systems. Emphasis on the phenomenological, behavioural and analytic models; research findings relative to these models and implications for counselling practice. Applicability of these models to small group counselling, including methods and problems of groups in counselling; research studies and analysis of small group interaction.

412-710A, B. THE DISORGANIZED PERSONALITY. (Half Course). Nature of disorganized behaviour and the adjustment process; adjustment and learning; variety of adjustment reactions; major adjustment mechanisms; the effect of unconscious psychological processes upon behaviour; consideration of the implications for counselling.

412-711D. ADVANCED METHODS OF EDUCATIONAL STUDY AND RESEARCH DESIGN. Statistical methods as applied to educational data and problems are systematically studied, including topics such as: correlation and regression, analysis of variance, and other tests of significance including selected non-parametric techniques. Training is given in identifying research problems and organizing useful means for research, and interpreting and reporting observed phenomena.

G1.3.3.4 Required Courses in Elementary School Counselling Major

412-717D. SEMINAR: INDIVIDUAL ANALYSIS AND PROGRAMS FOR EXCEPTIONALITY. Advanced study of diagnostic instruments, with emphasis upon the analysis, interpretation, and integration of all pertinent data; use of projectives, especially in play activities; implications for learning and adjustment problems of the elementary school child.

Identification and needs of exceptionality; special emphasis on programs that have been developed for the education of the exceptional child; study of relevant research dealing with the physical, mental, emotional, and social traits of all types of exceptional children.

412-787D. SEMINAR: RESEARCH PROBLEMS IN ELEMENTARY SCHOOL COUNSELLING. The seminar will consist of supervised study of selected topics for the particular option selected. These will be reported on in the seminar and their implications for research discussed. Current research and professional problems in counselling common to all levels will be covered with emphasis on recent literature. Some of these problems are: unified philosophy of the field, ethics of the profession, and legal responsibilities.

412-797D. SUPERVISED FIELD WORK IN ELEMENTARY COUNSELLING. (One Full Year). Study, observation, and practice at respective levels in selected settings; integration of theory and practice through supervision of experience, group seminar and individual conferences.

G1.3.3.5 Required Courses in Secondary School Counselling Major

412-720D. SEMINAR: CAREER DEVELOPMENT THEORY, PHILOSOPHY AND ORGANIZATION OF EDUCATIONAL PERSONNEL SERVICES. Contributions of contemporary career theories to the understanding of the processes and the determinants of career choice and adjustment; life stages and career patterns in personal and vocational development; study of selected problems, designs and outcomes of research in career development.

Analysis of the inter-related functions of all types of specialized student personnel workers with particular reference to their role in the total educational program, such as: admission practices, social systems, provision for advisement and counselling, student activities and self-government, administration of financial aid, faculty-student relations, and the principles governing the scope of such services and adapting them to educational institutions of various sizes and levels.

412-789D. SEMINAR: RESEARCH PROBLEMS IN SECONDARY SCHOOL COUNSELLING. See course description for 412-787D in the Elementary School Counselling Major.

412-796D. SUPERVISED FIELD WORK IN SECONDARY SCHOOL COUNSELLING. (One Full Year). See course description for 412-797D in the Elementary School Counselling Major.

G1.3.3.6 Required Courses in Student Personnel Counselling Major

412-720D. SEMINAR: CAREER DEVELOPMENT THEORY, PHILOSOPHY AND ORGANIZATION OF EDUCATIONAL PERSONNEL SERVICES. See course description in Secondary School Counselling Major.

412-788D. SEMINAR: RESEARCH PROBLEMS IN STUDENT PERSONNEL SERVICES. See course description for 412-787D in the Elementary School Counselling Major.

412-798D. SUPERVISED FIELD WORK IN STUDENT PERSONNEL SERVICES. (One Full Year). See course description for 412-797D in the Elementary School Counselling Major.

Candidates having special interests and needs not met by other available courses may register for the following:

412-770D. INDIVIDUAL READING. Candidates may, with the consent of the Department, elect this individual reading and conference course in lieu of one of the above courses.

All students must register for and complete the following:

412-701D. COMPREHENSIVE EXAMINATION.

THESIS. The thesis must display original scholarship expressed in satisfactory literary form and be a distinct contribution to knowledge.

G1.4 DEPARTMENT OF EDUCATION IN ENGLISH
Professor — J. M. O'Hara, *Chairman*

G1.4.1 M.Ed. TEACHING OF READING

Professor — F. P. Greene, *Program Director*

G1.4.1.1 Required Courses in Reading

427-665D. ADVANCED STUDY OF READING INSTRUCTION. Principles, approaches, techniques and materials for teaching reading in the Elementary and Secondary School within the context of total language development; stimulation of desirable reading habits and tastes, provision for individual differences, evaluation and reporting of pupil progress; observation of effective practices in schools.

427-666D AND 427-667D. DIAGNOSIS AND TREATMENT OF READING DISABILITY. (Two related and sequential full courses which cannot be taken separately.) Causes, diagnosis and treatment of reading disability including neurological, physiological, psychological and social factors; use of diagnosis instruments, construction of informal diagnosis measures; observation of diagnosis and treatment in schools, clinics and hospitals; supervised individual case studies including diagnosis and treatment.

427-668A, B. INSTRUCTION FOR PUPILS LEARNING ENGLISH AS A SECOND LANGUAGE. (Half Course). The general body of knowledge common to all second language teaching and learning; modern English structure in a second language perspective based on applied linguistics; teaching techniques and media. N.B. A practicum is an integral part of this course.

427-669A, B. SUPERVISION OF THE TEACHING OF READING. (Half Course). Problems of organization, administration, supervision and curriculum development in reading with particular emphasis on non-graded patterns of instruction and on provision for individual differences in rates and levels of achievement; the evaluation of instructional materials and equipment; the organization of workshops and in-service training.

427-670D. SPECIAL PAPER ON THE TEACHING OF READING. Selection and exploration of a specific aspect of the teaching of reading, under the guidance of a faculty advisor; scholarly presentations of a survey and critique of the literature, and of conclusions arrived at by an original treatment.

427-671D. PRACTICUM IN READING. Instruction of groups and individuals at various levels and various rates of learning; conferences and the preparation of case studies.

G1.4.1.2 Related Disciplines

The equivalent of two full graduate level courses. These must include either 414-610A, B. EDUCATIONAL MEASUREMENT (Half Couse) and 414-645A, B. DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS (Half Course) or 414-602D. THE USE OF STATISTICS IN EDUCATIONAL PROCEDURES (Full Course). The remaining courses are to be selected with the approval of the Department.

G1.4.1.3 Additional Entrance Requirements

1) The candidate must demonstrate familiarity with the procedures most commonly used in the teaching of reading in the Elementary School.

2) His undergraduate record must show a suitable concentration in English or Psychology.

3) In exceptional cases applications will be considered from candidates unable to satisfy the above minimum requirements, where evidence of compensating qualities is presented.

4) Applications will close each Spring as space in the program is filled.

G1.5 DEPARTMENT OF EDUCATIONAL ADMINISTRATION
Professor — Robert Lavery, *Chairman*

G1.5.1. M.A. EDUCATIONAL ADMINISTRATION

G1.5.1.1 Required Courses

411-612D. PRINCIPLES OF EDUCATIONAL ADMINISTRATION. This introductory course deals with the following topics: administration as a field of study, organizations, administrative behaviour, personnel administration, communications.

411-622D. CASE STUDIES IN EDUCATIONAL ADMINISTRATION. In this practicum the students will relate theory to the practice of school administration and supervision. Case studies will be presented to the group and, in addition, students will prepare studies based on their experiences. Students who are not practising administrators will be assigned to local schools where they will observe and assist administrators.

414-610A, B. EDUCATIONAL MEASUREMENT. (Half Course). See M.Ed. Special Education.

411-621D. THESIS PREPARATION. Seminars on procedures of research and experimental design dealing with the identification of research problems, the collection of data and the analysis and reporting of results. Supervision of the thesis. Successful presentation of the thesis completes the requirements for this course.

G1.5.1.2 Options

Two full courses approved by the student's Adviser.

G1.5.1.3 Additional Entrance Requirements

1) Normally, a minimum of three years of teaching experience.

2) Statements of academic experience, professional teacher training, teaching experience and future career plans.

3) Two letters of recommendation from administrative superiors attesting to the candidate's potential as an administrator should be forwarded directly to the Department of Educational Administration.

G1.5.2 M.Ed. EDUCATIONAL ADMINISTRATION

G1.5.2.1 Required Courses

411-612D. PRINCIPLES OF EDUCATIONAL ADMINISTRATION. See M.A. Educational Administration.

411-622D. CASE STUDIES IN EDUCATIONAL ADMINISTRATION. In this practicum the students will relate theory to the practice of school administration and supervision. Case studies will be presented to the group and, in addition, students will prepare studies based on their experiences. Students who are not practising administrators will be assigned to local schools where they will observe and assist administrators.

411-630A, B. ADMINISTRATION OF EDUCATION IN QUEBEC. (Half Course). Consideration of the system of education in Quebec. The focus will be, first, on the basic legal framework of education in Quebec and the principal legal documents, and scond, on the educational system in interaction with other social systems and with society as a whole.

414-610A, B. EDUCATIONAL MEASUREMENT. (Half Course). See M.Ed. Special Education.

G1.5.2.2 Options in Educational Administration

Two and one-half to three and one-half courses from the following:

411-631D. ADMINISTRATION OF EDUCATION IN CANADA. This course is intended to provide an overview of the structures of education, federally and provincially. Organization, legislation, and provincial commission reports are studied. Comparisons and contrasts between provincial educational programs are considered, with particular emphasis on education in the Province of Quebec.

411-632D. SCHOOL FINANCE AND THE ECONOMICS OF EDUCATION. This is a foundation course in revenue income for education in Canada in general and in the Province of Quebec specifically, as it relates to the ongoing process of budget and school management.

411-635A, B. FISCAL ACCOUNTABILITY FOR THE SCHOOLS. (Half Course). Consideration of the schools' responsibility to the public in maintaining quality education within the limitations of accountability and organizational framework. Budgeting and evaluation of pupil progress will be studied as the measures of the schools' fulfilment of responsibility.

411-642D. DEVELOPMENT AND ADMINISTRATION OF THE SCHOOL CURRICULUM. This course deals with the development of the school curriculum at various age levels and in different settings with the organization of the school and the classroom to implement curricular plans. A study will be made of a variety of organizational schemes and of their development and implementation.

411-644A, B. PRACTICUM IN THE ADMINISTRATION OF INSTRUCTION. (Half Course). A directed analysis of the administrative experience. On-the-job field studies will be developed and interpreted. Departmental consultation and evaluation will be provided on an individual basis and will focus on specific field experience.

411-645A, B. PRACTICUM IN THE SUPERVISION OF INSTRUCTION. (Half Course). Investigation of past and current theory and research dealing with supervision. Leadership and evaluation

as roles of supervision will be analyzed in the school setting, with emphasis placed on supervision as the improvement of instruction and learning. Practical experience will include supervision of student teaching.

411-661A, B. POLITICS OF EDUCATIONAL DECISION MAKING. (Half Course). A study of the nature of political and social constraints within which school systems operate at the local, provincial and federal levels. The contributions of such basic social sciences as political science, political sociology and social psychology will be considered.

411-672D. THE PRINCIPAL AND OTHER SCHOOL ADMINISTRATORS. This seminar course will deal with problems of personnel in administration, staff selection and utilization, supervision of instruction, professional development of staff, and staff evaluation. Various roles in school administration will be defined but emphasis will be placed on the elementary and secondary school principal. *Prerequisite* 411-612D.

G1.5.2.3 **Options in Other Departments**

One and one-half or two and one-half courses outside the Department of Educational Administration, with the approval of the student's Adviser.

G1.5.2.4 **Additional Entrance Requirements**

See M.A. Educational Administration.

G1.6 DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND SOCIOLOGY

Professor — Howard Stutt, *Chairman*

G1.6.1. **M.A. EDUCATIONAL PSYCHOLOGY**

W. Floch, *Program Director*

G1.6.1.1 **Required Courses**

414-602D. THE USES OF STATISTICS IN EDUCATIONAL PROCEDURES. Tests of differences and relations, analysis of variance, univariate regression, covariance, goodness of fit, scaling and redistribution of scores. Use of calculators and computers. Specific attention to research interpretation, nonparametric techniques, assigning appropriate statistical models.

N.B. (1) *Prerequisite course:* 414-610A, B. EDUCATIONAL MEASUREMENT (Half Course), which may not be taken concurrently. Students who have not completed 414-610A, B or its equivalent are advised to complete this prerequisite in the session immediately preceding the session in which they register for 414-602D.

(2) Students also registering for 414-621D Seminars are advised to do so concurrently with 414-602D.

(3) 414-602D will normally only be offered during the winter sessions.

414-615D. STUDIES IN EDUCATIONAL PSYCHOLOGY: CHILD DEVELOPMENT AND PERSONALITY. An analysis of the theoretical and research literature in child and adolescent development with particular attention to the major theories of personality. Applications to teaching and other aspects of education.

414-621D. THESIS PREPARATION. Seminars on procedures of research and experimental design dealing with the identification of research problems, the collection of data and the analysis and reporting of results. Supervision of the thesis. Successful presentation of the thesis completes the requirements for this course. It is recommended that students attend the seminars concurrently with 414-602D.

414-635D. STUDIES IN EDUCATIONAL PSYCHOLOGY: LEARNING AND INTELLIGENCE. The learning section of this course includes an examination of current conceptualizations of learning with emphasis on those from which applications have been made to the educational process. The second section of the course deals with theories of intelligence and intellectual processes. Normally, a student admitted to this course will have completed 414-602D, or its equivalent. Full time students may, with the written consent of the instructors of both 414-602D and 414-635D, take these courses concurrently during the winter sessions.

414-655D. RECENT DEVELOPMENTS IN COGNITIVE PSYCHOLOGY. A study of recent developments in cognitive psychology, this course of lectures and seminars will trace the development of the ideas of Piaget, Bruner, Osgood, Ausubel, Berlyne and others who have influenced recent work in this area. Other models of cognitive functioning will also be examined, and attempts made to relate these to theories of intellectual development. Normally, a student who is admitted to this course will have completed 414-635D, or its equivalent.

G1.6.1.2 **Option**

Minimum of one full course.

With the approval of the Department a minimum of one full course must be chosen from 414-603D — Reading Course, 414-614D — Sociology of Education, from graduate level courses in Education or from courses offered by other Departments of the University.

414-614D. SOCIOLOGY OF EDUCATION. Specific topics in this course differ somewhat from year to year but in general they deal with education in relation to society as a whole, educational organizations related to each other, the socialization process and the place of education in that process, and the social psychology of learning.

G1.6.1.3 **Additional Entrance Requirements**

1) Statements of academic experience, professional teacher training, teaching experience and future career plans.

2) An introductory half course in statistics should form part of the undergraduate program of the prospective candidate. Students accepted who have not taken such a course will be required to take 414-610A, B Educational Measurement, or an acceptable substitute. See M.Ed. Special Education for course description of 414-610A, B.

G1.6.2 **M.Ed. SPECIAL EDUCATION**

Professor H. A. Stutt, *Program Director*

The program will include a minimum of six full courses followed by an internship. The requirements of the internship will in most cases be satisfied through an assignment to a Special Education position in a local school.

Students will usually include in their program the Special Education courses listed below. However, students with special qualifications or interests may with the approval of the Department concerned substitute other graduate level courses offered by the Faculty of Education or by other faculties of the University.

G1.6.2.1 **Special Education Courses**

414-642A AND 414-643B. EDUCATION OF EXCEPTIONAL CHILDREN. (Half Course). Two related and sequential half courses. Introduction to programs and problems of educating handicapped or gifted children.

414-644A. LEARNING PROBLEMS OF EXCEPTIONAL CHILDREN. Learning process; relationship of various handicapping conditions to difficulties in learning; developmental and corrective programs.

414-645A, B. DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS. (Half Course). Principles and procedures in the education of pupil growth and achievement and in the diagnosis of the causes of poor achievement. Emphasis will be given to the use and interpretation of tests to be given by the class teacher. Reference will be made to the use by the teacher of tests given outside the classroom by guidance counsellors or psychologists.

414-646A, B. PRACTICUM: DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS. (Half Course). Practice in the administration and interpretation of individual and group tests; use of other-than-teacher test results; collection and use of other pertinent data.

414-653A, B. INDIVIDUALIZED CURRICULA AND SPECIAL TEACHING METHODOLOGY. (Half Course). Methodology and curricula for pupils of different types of exceptionality and at different stages of development; materials, activities, records, grading.

414-654A, B. PRACTICUM: INDIVIDUALIZED CURRICULA AND SPECIAL TEACHING METHODOLOGY. (Half Course). An opportunity will be given to develop individual teaching programs for selected exceptional children. Practice will be given in the use of specialized teaching techniques.

†414-656D. CLINIC: REMEDIATION OF SELECTED LEARNING DIFFICULTIES. Participation as a special education teacher in an interdisciplinary team; planning and carrying out of remedial programs for individual pupils; working with parents of children with learning difficulties.

†414-658D. SEMINAR: REMEDIATION OF SELECTED LEARNING DIFFICULTIES. Interpretation of observable data and of information obtained from cumulative records; preparation and evaluation of individual and group programs of both a short and long range nature; planning developmental and remedial programs for the clinic, the regular class, and the special class.

414-659D. INTERNSHIP FOR SPECIAL EDUCATION. A supervised experience in either a school or clinic setting for exceptional children; or the development under supervision of a program or curriculum for exceptional children; or a detailed study of an aspect of the provisions for the education of exceptional children; or an intensive study of one or more exceptional children.

†At present courses 414-656D and 414-658D include participation as a junior staff member in the Learning Centre under the direction of Dr. M. S. Rabinovitch of the Department of Psychology of McGill.

G1.6.2.2 **Additional Admission Requirements**

1) An introductory half course in statistics should form part of the undergraduate program of the prospective candidate. Students accepted who have not taken such a course will be required to take 414-610A, B — Educational Measurement, or an acceptable substitute.

414-610A, B. EDUCATIONAL MEASUREMENT. (Half Course). Statistical measurements in education; graphs, charts, frequency distributions, central tendencies, dispersion, correlation, and sampling errors.

N.B. *Prerequisite* to 414-602D. THE USES OF STATISTICS IN EDUCATIONAL PROCEDURES. These courses may not be taken concurrently.

G1.7 DEPARTMENT OF PHYSICAL EDUCATION
Professor — R. E. Wilkinson, *Chairman*

G1.7.1 **M.A. PHYSICAL EDUCATION**

Professor John Chomay, *Program Director*

G1.7.1.1 **Required Courses**

414-602D. THE USE OF STATISTICS IN EDUCATIONAL PROCEDURES. See M.A. Educational Psychology.

434-621D. THESIS PREPARATION. Seminars on procedures of research and experimental design dealing with the identification of research problems, the collection of data and the analysis and reporting of results. Supervision of the thesis. Successful presentation of the thesis completes the requirements for this course.

G1.7.1.2 **Physical Education Courses**

A minimum of one full course from the following:

434-662D. ADVANCED EXERCISE PHYSIOLOGY.* A comprehensive treatment of the behaviour of physiological processes in response to exercise. Emphasis is given in such areas as: nature of muscular activity, regulation during exercise, effects of physical training, genetic, nongenetic and environmental factors limiting the individual's adaptive value. A laboratory program is designed to familiarize the student with methods and problems of ergophysiological research.

*Offered in conjunction with the Faculty of Medicine.

434-663D. ADVANCED KINESIOLOGY. Mechanics of human movement and their analyses in terms of the contribution of skeletal, nervous and muscular systems. Analysis is done primarily through cinemaphotographic and electromyographic techniques.

434-664D. PSYCHOLOGY OF MOTOR PERFORMANCE. Study of the application and analysis of psychological principles and theories to motor learning and performance. Emphasis on selected aspects such as individual differences, transfer, interference, stress, reminiscence and factors affecting motor performance.

G1.7.1.3 **Optional Courses**

Two full courses.

Two additional courses, as approved by the Department, may be chosen from the Physical Education options above, from graduate level courses in the Faculty of Education, or from other faculties of the University.

G1.7.1.4 **Additional Admission Requirements**

1) An undergraduate degree with a major in Physical Education, or its equivalent, from a recognized university.

G1.8 DEPARTMENT OF SOCIAL FOUNDATIONS OF EDUCATION

Professor — J. K. Jobling, *Chairman*

G1.8.1 M.A. DEGREES

The Department offers Master of Arts degrees in three areas: Comparative Education, History of Education and Philosophy of Education. The appropriate courses will be chosen in consultation with the Chairman of the Department.

G1.8.1.1 Special Entrance Requirements

1) Normally, students should have an Honours standing or a similar standing in an appropriate academic field.

2) Well qualified students may be admitted to the program without teaching experience.

G1.8.1.2 Program Requirements

Students are required to complete five full courses, one of which must be 413-621D — Thesis Preparation, and a thesis. In addition to Department courses listed below, students may, with Departmental approval, elect courses from other departments of the Faculty of Education or from other faculties of the University. Normally only one Reading Course may be taken.

413-603D. READING COURSE.

413-610D. SOCIAL FOUNDATIONS OF EDUCATION. An examination of education and society through the eyes of educational historians, educational philosophers, educational sociologists, and comparative educators. Particular attention will be devoted to persistent educational problems at home and abroad.

413-615D. SELECTED ISSUES IN CONTEMPORARY EDUCATION. In-depth analysis of a limited number of issues and problems in education. Three to five contemporary problems will be selected and a variety of approaches used. The following are some examples of issues that may be selected: education and the future; moral education; teacher education; foundations of curriculum.

413-616A, B. READING COURSE. (Half Course).

413-617D. HISTORICAL FOUNDATIONS OF CONTEMPORARY EDUCATION. A study of contemporary issues in education against an historical background. Some of the questions treated in depth will be the changing relations of church and state in education; the problems of mass education; the evolving concept of the university; the impact of the "second industrial revolution" on the school.

413-620D. STUDIES IN COMPARATIVE EDUCATION. This course seeks to inform the student of contemporary educational developments in selected modern countries and in developing areas, and to familiarize him with some of the techniques and methods used in comparing different systems of education.

413-621D. THESIS PREPARATION. Seminars on research procedures, location and extraction of data and presentation of findings. Supervision of the thesis. Successful presentation of the thesis completes the requirements for this course.

413-627D. PHILOSOPHICAL ANALYSIS AND THE PROBLEMS OF EDUCATION. An examination of philosophical methods such as logical analysis, linguistic analysis and phenomenology, together with an exploration of their function in the clarification of educational issues.

413-637D. DEVELOPMENT OF EDUCATION IN CANADA. A cultural treatment of education in Canada from its beginnings to the present.

413-640D. COMPARATIVE STUDIES IN EDUCATION IN WESTERN EUROPE. The course treats in depth contemporary education in France and Germany in relation to the social forces impinging on it from 1800 to the present.

413-641D. COMPARATIVE STUDY OF EDUCATION IN DEVELOPING NATIONS. An analysis of education in selected Asian, African and Latin-American nations with special emphasis on the role of education in nation building.

413-647D. HISTORY OF EDUCATION IN FRENCH CANADA. Consideration of the ideas and institutions relating to education in French Canada from the sixteenth century to the twentieth, with particular attention to the historical antecedents of contemporary problems.

413-657D. LEADING EDUCATIONAL THINKERS. A study in depth of the ideas of prominent educational thinkers. Selection will be made from among such writers as Plato, Aquinas, Rousseau, Kant, Maritain, Dewey, Whitehead, Russell and McLuhan.

413-667D. HISTORY OF EDUCATION IN THE 19TH CENTURY. An analysis of the cultural forces that helped shape education in the century of Darwin, Marx, and Freud. Attention will be given to the impact of nationalism, colonialism, and industrialism on educational development.

413-677D. ADVANCED PHILOSOPHY OF EDUCATION. An inquiry into significant philosophic questions such as the nature of educational theory, ways of knowing, justification of judgements in education, the relations of science, philosophy and religion in education.

G1.9 M.Ed. DEGREES IN TEACHING SUBJECTS (in the appropriate departments)

The program normally takes two years, one of which is usually of full time study, but arrangements can sometimes be made for half time study. At present only degrees in teaching of Chemistry, French as a Second Language, Geography and History are offered by part time study in their entirety. Others will be offered for 1973 but arrangements have not yet been completed. Inquiries for degrees in teaching subjects should be made to the Director of Graduate Studies in Education.

G1.9.1 Program Requirements

1) First Year — Individually prescribed programs in the teaching subject. This will be taken under the direction of the appropriate department.

2) Second Year — (a) Tutorial or seminar courses, in the teaching of the subject. These are under the direction of the Faculty of Education or are given jointly by the Faculty of Education and the department concerned. (b) The submission of a paper or project report on the teaching of the subject.

G1.9.2 Additional Entrance Requirements

1) Recommendation for teaching ability.

McGill University

FACULTY OF LAW

1973-1974

Chancellor Day Hall
3644 Peel Street*
Montreal 112, Que., Canada
Telephone (514) 392-5122

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 3 73

1 STAFF

1.1 ADMINISTRATIVE OFFICERS, UNIVERSITY

Robert E. Bell, B.A., M.A. (U.B.C.), Ph.D., F.R.S.C., F.R.S. — Principal and Vice-Chancellor

Stanley B. Frost, B.D., M.Th. (London), Dr. Phil. (Marburg), D.D. (Vic., Tor.), D. Litt. (Mem.) — (Administration & Professional Faculties)

Eigil Pedersen, B.A. (Sir G. Wms.), Ed.D. (Harv.), M.A. — Vice-Principal (Academic)

Dale C. Thompson, B.A. (Alta.), Ph.D. (Paris) — Vice-Principal (Planning)

John H. Holton, B.Com. (Tor.) — Secretary of the Board of Governors

Allan C. McColl, D.F.C., B.Comm., C.A. — Director of Finance

Colin M. McDougall, D.S.O., B.A. — Registrar

1.2 ADMINISTRATIVE OFFICERS, FACULTY

John W. Durnford, B.A., B.C.L. — Dean, Faculty of Law

William F. Foster, L.L.B. (Hons.) (Auck.), LL.M. (U.B.C.) — Associate Dean for Student Affairs

Miss Marianne Scott, B.A., B.L.S. — Law Librarian

1.3 TEACHING STAFF

Professors

Frank R. Scott, C.C., Q.C., B.A. (Bishop's and Oxon.), B.Litt. (Oxon), B.C.L. (McG.), F.R.S.C., LL.D. (Dalhousie, Man., Queen's, U.B.C., Sask., Osgoode, McG., Laval), D.C.L. (Bishop's, Windsor), D.Litt. (Sir G. Wms., U. of T.), D-es-Jur. (Montr.)
Retired Macdonald Professor of Law

John E.C. Brierley, B.A. (Bishop's), B.C.L., Docteur de l'Université de Paris (Droit).

Yves Caron, B.A., LL.L. (Montr.), LL.M. (Col.), D.Phil. (Oxon.)

Maxwell Cohen, Q.C., B.A., LL.B., (Man.), LL.M., (Northwestern), LL.D. (U.N.B., Man., York), D.C.L. (Bishop's)
Macdonald Professor of Law

Paul-A. Crepeau, Q.C., B.A., L.Ph. (Ott.), LL.L. (Montr.), B.C.L. (Oxon), Docteur de l'Université de Paris (Droit), LL.D. (Ott.)
Wainwright Senior Fellow

John W. Durnford, B.A., B.C.L.

Herman Robert Hahlo, Dr. Jur. (Halle), LL.B. (Rand.), LL.D. (Rand.)

Perry Meyer, B.A., B.C.L.

Ivan A. Vlasic, B.C.L. (Zag.), LL.M. (McG.), LL.M., J.S.D. (Yale)

Donovan W.M. Waters, B.A., B.C.L., M.A. (Oxon.), Ph.D. (London)

Associate Professors

Martin Bradley, LL.B. (Mel.), LL.M.

David Cayne, LL.M. (U of Cal.), B.A., B.C.L.

Irwin Cotler, LL.M. (Yale), B.A., B.C.L.

Richard Alan Field, LL.B. (Hons.) (Bristol), LL.M. (L.S.Ec.)

William F. Foster, LL.B. (Hons.) (Auck.), LL.M. (U.B.C.)

H. Patrick Glenn, B.A. (U.B.C.), LL.B. (Queen's), LL.M. (Harvard), Docteur en droit (Strasbourg)

J. Noel Lyon, LL.B. (U.B.C.), LL.M. (Yale)

Stephen A. Scott, D. Phil. (Oxon.), B.A., B.C.L.

Ronald B. Sklar, B.S., LL.M. (Yale), LL.B. (Brooklyn), LL.M. (Northwestern)

Philip Slayton, B.A. (Hons.) (Man.), B.A., B.C.L., M.A. (Oxon.)

Assistant Professors

Ronald I. Cohen, A.B. (Harvard), B.C.L.

Daniel Ish, B.A., LL.B., (Sask.)

Peter M. Jacobson, B.A., LL.B. (Hons) (Sydney), LL.M. (Penn.)

Saul Schwartz, M.A., LL.B. (Cantab.), LL.M. (Harvard)

Research Associate

Norman Rapkin, B.A. (Bowdoin), LL.B. (Harvard), LL.M. (N.Y.U.)

Part-Time Assistant Professor

Mrs. J.M. Glenn, B.A., LL.B. (Queen's) (in residence)

Part-Time Lecturers

Paul M. Amos, B.A. (Sir G. Wms.), LL.L. (Laval), B.Sc.

The Hon. Mr. Justice H.L. Aronovitch, LL.L. (Montr.), B.A.

Peter Blaikie, B.A. (Bishop's), M.A. (Oxon.), B.C.L.

Morris J. Fish, B.A., B.C.L.

Paul V. Gadban, B.A. (Oxon.)

Michael L. Garonce, B.A., B.C.L.

James Grant, B.A., B.C.L.

Mme. E. Groffier-Atala, Docteur de l'Université Libre de Brux., D.C.L.

Stanley Hartt, B.A. (Sir G. Wms.), B.C.L.

Roy Heenan, B.A., B.C.L.

William Hesler, B.A. (Queen's), LL.L. (Montr.)

Stanley Hitzig, B.Comm., L.I.A., C.A.

The Hon. Mr. Justice James K. Hugessen, M.A. (Oxon.), B.C.L.

John P. Humphrey, Doctor of the U. of Algiers; Doctor Social Sciences (U. of Ott.), LL.D. (Carleton), B.Comm., B.A., B.C.L., Ph.D.

Colin K. Irving, B.A., B.C.L.

Donald J. Johnston, B.A., B.C.L.

David Phillip Jones, B.A. (Hons.) (Oxon.), B.A.

Kenneth Katz, LL.L. (Montr.), B.A.

Earl Kimmel, B.A., B.C.L.

Leonard Max, B.A., LL.B. (U. of T.)

Gerald McCarthy, B.A. (Loyola), B.C.L.

Malcolm McLeod, B.A., B.C.L.

Maxwell Mendelsohn, LL.L. (Montr.), B.A.

Daniel N. Mettarlin, B.A., B.C.L.

David O'Brien, B.A. (Loyola), B.C.L.

Douglas Pascal, B.A., B.C.L.

Michel Proulx, B.A., LL.L. (Laval)

Miss M.F. Scott, B.A., B.L.S.

Richard Shadley, B.A., B.C.L.

Mme Pierrette Sinclair, B.A., LL.L. (Montr.)

W.E. Stavert, B.A. (Bishop's), B.C.L.

Douglas Tees, B.A., B.C.L.

Bruce Verchere, LL.B. (U.B.C.)

Mrs. Maryla Waters, LL.B. (London), J.D. (Chicago)

Samuel Wex, B.A., B.C.L.

Harvey W. Yarosky, B.A., Ph.D., B.C.L.

Honorary Lecturer

Christopher Green, B.A., M.A. (Conn.), Ph.D. (Wisc.) *Legal Problems in Government Control of Business*

1.3.1 INSTITUTE OF AIR AND SPACE LAW

Ivan A. Vlasic, B.C.L. (Zag.), LL.M. (McG.), LL.M., J.S.D. (Yale) — **Director**

Martin Bradley, LL.B. (Mel.), LL.M.

Part-Time Lecturers

Gerald F. Fitzgerald, M.A., B.C.L., (U.N.B.), Ph.D. (Ott.)

Julian G. Gazdik, D.C.L., Dr. Pol.Sc. (Pecs), M.C.L.

David I. Johnston, B.Sc. (Sir G. Wms.), B.A., B.C.L., LL.M.

James J. Smith, B.Com. (Edin.), B.Com. (U.B.C.)

1.3.2 INSTITUTE OF COMPARATIVE LAW

Herman Robert Hahlo, Dr. Jur. (Halle), LL.D. (Rand.) — **Director**

Faculty Members Teaching in the Institute

Maxwell Cohen, Q.C., B.A., LL.B. (Man.), LL.M. (Northwestern), LL.D. (U.N.B., Man., York), D.C.L. (Bishop's) — **Macdonald Professor of Law**

Paul-A. Crepeau, Q.C., B.A., L.Ph. (Ott.), LL.L. (Montr.), B.C.L. (Oxon.), Docteur de l'Université de Paris (Droit), LL.D. (Ott.) — **Professor, Wainwright Senior Fellow**

Perry Meyer, B.A., B.C.L. — **Professor**

Ivan A. Vlasic, B.C.L. (Zag.), LL.M. (McG.), LL.M., J.S.D. (Yale) — **Professor**

Donovan W.M. Waters, B.A., B.C.L., M.A. (Oxon.), Ph.D. (London) — **Professor**

John E.C. Brierley, B.A. (Bishop's), B.C.L., Docteur de l'Université de Paris (Droit) — **Professor**

H. Patrick Glenn, B.A. (U.B.C.), LL.B. (Queen's), LL.M. (Harvard), Docteur en droit (Strasbourg) — **Associate Professor**

Philip Slayton, B.A. (Hons.) (Man.), B.A., B.C.L., M.A. (Oxon.) — **Associate Professor**

2 GENERAL INFORMATION

2.1 THE FACULTY OF LAW

The Faculty of Law of McGill University is Canada's oldest Law Faculty, and the only English-speaking law faculty in Canada teaching the civil law system. Until 1968, the Faculty's undergraduate program consisted of a three-year program of studies leading to the degree of Bachelor of Civil Law. This degree, while providing a liberal education in legal principles and theory, prepared candidates for admission to only the Quebec legal professions, as advocate or notary.

In 1968, the Faculty inaugurated the National Program. This Program is an integrated program of studies in Canadian Law in which students pursuing either a civil law or common law degree share a wide range of "Canadian" law courses in areas such as constitutional law, public international law, administrative law, commercial law, criminal law, and labour law. All civil law students take at least one basic common law course, such as contract, tort or property; all common law students take a number of basic civil law courses. Thus each student receives a basic training in the legal system in which he is earning his degree together with a serious introduction to the other. Thus a student may still obtain only a B.C.L. degree; alternatively, he may study for only the LL.B. (common law) degree. This latter program prepares candidates for the Bars of the Common Law Provinces, nearly all of which recognize the McGill LL.B. degree. But a further year of study after the obtaining of either degree leads to the granting of the second degree (B.C.L. & LL.B., LL.B. & B.C.L.). More and more students are now taking advantage of the opportunity to obtain this basic training in both systems.

It is to be noted that the LL.B. degree is conceived essentially as part of a four year National Program leading to the granting of both LL.B. (common law) and B.C.L. (civil law) degrees. While an LL.B. student may receive his LL.B. degree after three years of study, the Faculty expects that generally LL.B. students will proceed to the National Program. The requirements for the LL.B. degree, with their substantial civil law component and the reduced opportunities for undertaking elective courses during the first three years of study, have been structured so as to reflect this aim.

Common law students are required to take as part of their LL.B. degree Obligations I, Civil Property I and II, and choose a further six credits from Civil Law Evidence and Procedure I, Successions, Special Contracts I and II, and a Comparative Law course.

The introduction of the National Program at McGill was made possible by reason of our unique position as Canada's only English-speaking civil law school, and the fact that so much of the subject matter in a common law or civil law curriculum is common to both systems. The Faculty believes that its National Program creates an important link between Quebec and the rest of Canada. We are now training truly "national" lawyers, for which there is a real need in this country. Our double-degree graduates are experiencing the value of their dual training and the greater role they feel enabled to play as Quebecers and Canadians. These graduates are finding their way into federal government jobs in Ottawa; and, in both Quebec and Ontario practice, they are called upon to relate the law and practices of the two provinces.

For those intending to practise only in Quebec, the National Program is of no less value. Few Quebec practitioners deal only with the private law of Quebec; much law in this province is common to all the provinces, and even Quebec private law is touched at many points, especially in commercial practice, by common law doctrines. Moreover, many clients have interests that transcend this Province. Consequently, an understanding of the common law is an asset to the Quebec practitioner.

2.2 DEGREES

2.2.1 B.C.L. AND LL.B.

The degrees granted in the Faculty are those of Bachelor of Civil Law (B.C.L.) and Bachelor of Laws (LL.B.).

2.2.2 HIGHER DEGREES

The higher degrees in law are the M.C.L. (Master of Civil Law), the LL.M. (Master of Laws), and the D.C.L. (Doctor of Civil Law). Information concerning these degrees and the Graduate programs relating to them is summarized under the heading "General Regulations Concerning Higher Degrees in Law," (sections 6.1.1 and following).

2.3 ADMISSION

2.3.1 GENERAL REGULATIONS

Application forms, which can be obtained by writing to the Faculty, must be completed and submitted by March 1, and be accompanied by an application fee of $15 by certified cheque or money order made payable to McGill University. Applications for admission should be sent to the Admissions Officer, Faculty of Law, McGill University, 3644 Peel Street, Montreal 112. Students already registered at McGill University at the time of application for admission to the Faculty of Law will not be charged the $15 application fee. Late applications will only be considered under exceptional circumstances. Applicants should forward their transcripts, including those for their final year, as soon as possible. Candidates for admission may be required to be interviewed by the Chairman of the Admissions Committee or another member of the Faculty. In all cases admission is at the discretion of the Faculty.

The courses given in every case anticipate at least two hours of directed study for every hour of lecture. In addition, each candidate is obliged to write the essays, to attend the seminars, to participate in the Moot Court and Group Tutorial programs, and to fulfil whatever other requirements may be set by the Faculty. Candidates are expected to devote their whole time to their legal studies and are prohibited from taking other academic studies during the academic session without prior approval of the Dean.

No student is allowed to be enrolled concurrently in the Law School program and a professional training program of any Bar, which program consists of a course of lecturers and/or period of articling. Where a student is found to be in breach of this rule, the Dean may require him to withdraw from the School.

2.3.2 LANGUAGE REQUIREMENTS

Every candidate, whether a candidate for the degree of Bachelor of Civil Law (B.C.L.) or for the degree of Bachelor of Laws (LL.B.) is expected to have substantial fluency in both the French and English languages.

Candidates will be required to read in both languages and examinations may contain extracts in either French or English. One or more French language optional civil law courses are generally offered by the Faculty.

Examinations, term papers and essays may be written either in English or French. Participation in moot courts may also be in either language. Examination questions are set in the language in which a course is given.

One or more basic courses in the civil law in other than the first year program may be given in the French language only.

2.4 ADMISSION STANDARDS

2.4.1 B.C.L. AND LL.B. DEGREES

One of the primary qualifications for admission to either the B.C.L. or the LL.B. program is the attainment with a second class standing of a B.A. or an equivalent degree from a university or college which is recognized by McGill University. Candidates holding a diploma of college studies with a high standing from a Quebec General and Vocational College (CEGEP) are also eligible for admission; however, candidates holding a CEGEP Diploma cannot be admitted directly into the Common Law (LL.B.) program but must commence by taking the Civil Law (B.C.L.) program. In exceptional cases, candidates with lesser academic qualifications may be admitted to the Faculty if they are qualified to pursue with advantage the study of law.

Please refer to section 5 for admission to the legal profession. In particular, the attention of candidates holding CEGEP diplomas is drawn to the fact that admission to the Bars of the other Provinces may require additional years of pre-law university education.

The Faculty may admit a limited number of suitable persons, no matter what their academic qualifications, to attend selected courses of lectures. Such permission will only be granted to applicants who satisfy the Faculty of their capacity to undertake with advantage the study of law. They will not be allowed to proceed to a degree, but will be entitled to receive a certificate specifying the course or courses which they have successfully pursued and the grade which they have obtained.

2.4.2 NATIONAL PROGRAM

Admission into this program is set forth under the heading "Regulations for the National Program," Section 3.3.

2.5 REGISTRATION AND COMMENCEMENT OF CLASSES

Registration in all years of Law is on September 4, 1973. **All students must register in person.**

First year will commence on September 4, other students will start on September 5.

Students registering late will be required to pay a Late Registration Fee and should read carefully the regulation concerning late registration in Section 2.6.2, paragraph 3.

2.5.1 DEPOSIT

A student whose application for admission has been approved must send a deposit of $100.00 by certified cheque or money order made payable to McGill University within ten days of receiving notification of his acceptance. A student who does not wish to register, will be refunded his deposit if the Admissions Office of the Faculty has received notification of his intention not later than the date specified in the letter of acceptance.

2.6 FEES

University fees, including all the regular charges for registration, tuition, laboratories, graduation, health services, physical education, sports, games and Students' Society fees:

Each year $635.00

Each student will receive free of charge brief outlines of courses where such are available. As to other course materials (apart from casebooks), students have the choice of paying $15.00 for all the materials issued in the courses they are taking in the current year or of purchasing separately those materials they decide to acquire.

The attention of students is drawn to the fact that they will require books and casebooks for their courses which may cost them in excess of $200.00 per year.

Further information concerning admission, entrance requirements, faculties and degrees, fees and residential facilities, is published in the General Announcement, which may be obtained from the Registrar's Office.

2.6.1 COMPULSORY HEALTH INSURANCE FOR NON-CANADIAN STUDENTS

All full-time foreign students (including landed immigrants during their first year at McGill) must take out a Health Insurance policy, which is available on a group basis at the cost of $79.00 per student per year. In general, the policy provides for payment towards hospital, surgical, medical, diagnostic and other medical expenses.

2.6.2 GENERAL REGULATIONS

1. Students entering the University *for the first time* are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due within 10 days after registration, the second instalment before January 12, 1974.

2. Students *who have completed one or more years* and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 21, 1973, otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to non-first year students. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this for payment of the first instalment of fees, must obtain from the Student Aid Officer, McGill University, a Permit to Delay Payment of Fees.

3. Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

Late registration	$25.00
Late payment fee (after specified date):	
1st 30 days	10.00
After 30 days	25.00

3 CURRICULUM

The Faculty of Law operates under a credit system as follows.

3.1 ACADEMIC CREDIT TRANSFER AGREEMENT

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal, or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement* for details.

3.2 REGULATIONS FOR THE B.C.L. AND LL.B. DEGREES

1. The Faculty grants a Bachelor of Civil Law (B.C.L.) degree or a Bachelor of Laws (LL.B.) degree to candidates who have successfully completed ninety-five credits in accordance with the following regulations.

2. In the first year that he is registered for the degree of B.C.L. or LL.B., a candidate must take all the courses prescribed for the first year of the degree program for which he is registered (as hereinafter set forth in Appendix 1). In obtaining the number of credits required for his degree, a candidate must take all the courses indicated as obligatory for the obtaining of his degree and he shall not be permitted to register for a course unless he has obtained the credits allotted to courses that are indicated as prerequisites.

The attention of candidates proceeding to the Quebec legal profession is drawn to Appendix III and to the regulations of the Bar and of the Board of Notaries of the Province of Quebec.

The attention of candidates proceeding to the legal profession in Ontario is drawn to Appendix III and to the regulations of the Law Society of Upper Canada (Ontario). Candidates proceeding to the legal profession in other Provinces are referred to the regulations applying in those Provinces.

3. The remaining required credits are obtained by completing whatever other options the candidates selects.

3.3 REGULATIONS FOR THE NATIONAL PROGRAM

4. The Faculty grants the B.C.L. degree to candidates holding an LL.B. degree, and the LL.B. degree to candidates holding a B.C.L. degree, who have successfully completed an additional thirty credits in accordance with the present regulations. In order to be eligible to proceed to the LL.B. degree, the holder of a B.C.L. degree must have taken, and passed, during the B.C.L. program, Property IA & IIA and either Contracts I or Torts I. Likewise, the holder of an LL.B. degree desiring to proceed to the B.C.L., must have taken, and passed, during the LL.B.

program. Obligations I and Property I & II. (It is to be noted that candidates entering the first year of the LL.B. program in 1972-73 or subsequent years are obliged to take in their LL.B. program a larger number of basic civil law courses whether or not they intend to proceed subsequently to the B.C.L. degree.)

5. A candidate who has successfully completed the first year of either the B.C.L. or LL.B. program may opt on registering for his second year to enter immediately the National Program, and on obtaining one hundred and twenty-five credits in accordance with the following regulations, shall be granted both the said degrees jointly.

Should the candidate wish to terminate his studies after having completed ninety-five credits only, he may be granted, at the discretion of the Faculty, either the B.C.L. or the LL.B. degree, according to the courses in which he has obtained credits, provided that he has then obtained credits for all the courses listed in Appendix I and in either part of Appendix II.

6. In obtaining the number of credits required for his degree or degrees under the National Program, a candidate must take all the courses listed in Appendix I, and those indicated as obligatory in Appendices II and IV for candidates for the B.C.L. and LL.B. degrees.

7. The remaining required credits are obtained by completing whatever other options the candidate selects, subject always to the requirement that he have obtained the credits allotted to courses that are indicated as prerequisites; this latter rule also applies to obligatory courses.

3.4 GENERAL REGULATIONS

8. The word *course* as used in this calendar shall include, *inter alia*, tutorials, moots, essays, seminars and any other work for which credit is given, unless the context otherwise indicates.

9. The number of credits allotted each course equals the number of class hours per week except where otherwise indicated. The number of credits allotted to tutorials, moots and essays is set forth in the Appendices.

10. A limited number of the credits required for either law degree or for the joint degrees under the National Program may be obtained in appropriate courses given by other faculties of McGill University or other universities, as arranged from time to time, provided the approval of the Dean or the Associate Dean for Student Affairs has been granted prior to registration for any courses giving rise to such credits.

11. Candidates shall make their course elections for first term at the time of registration and for second term during the first week of the preceding December. Once the delays for registration of course selections have expired, no changes are permitted unless such become necessary as a consequence of factors such as the results of grading (which may render a candidate ineligible for a course), course cancellations, the addition of new courses, or time-table clashes. A candidate may, however, drop one of the courses which he has elected, and/or elect another course, provided that he does so within the first week of the term. The selection of courses shall be approved by the Dean or the Associate Dean for Student Affairs.

Admission to some courses may be limited owing to heavy demand and the resources available, or because of particular teaching methods in certain fields.

Candidates are reminded that they retain the ultimate responsibility for their selection of courses, and therefore must bear in mind possible consequences of their choice with respect to professional qualifications (see Admission to the Legal Profession, section 5).

12. The Faculty shall prescribe the program of candidates who do not make their course elections within the specified delays.

13. Candidates will not be allowed to alter or cancel their course registration otherwise than as prescribed above.

14. Each candidate, in his third and subsequent terms, must register for not less than twelve credits in each term (with the exception of his final term should a lesser number of credits be required for the obtaining of his degree); nevertheless, the Dean or the Associate Dean for Student Affairs may under extenuating circumstances permit a candidate not in first year to register for a lesser number of credits. No maximum is prescribed for any term (including First year), subject to the regulations as to prerequisite courses. *The attention of candidates is drawn to regulations 16 and 17.*

15. A candidate who has not succeeded in obtaining a minimum of three-quarters (rounded down to the nearest whole number) of the total credits for which he registered in any academic year will not be permitted to continue his studies in the Faculty of Law, except as hereinafter provided. A candidate who fails only one course which exceeds one quarter of the total credits for which he is registered shall not be required to withdraw from the Faculty by reason of the foregoing rule. A candidate who has not passed three-quarters of the total credits for which he is registered may be authorized to continue his studies if exceptional reasons for so doing exist.

16. No candidate will be granted a B.C.L. or an LL.B. degree unless he has been in full time attendance at the Faculty for a period of at least three academic years following his first registration in First year.

No candidate will be granted both the B.C.L. and LL.B. degrees unless he has been in full time attendance at the Faculty for a period of at least four academic years following his first registration in First year.

17. No candidate shall be eligible for any degree or degrees granted by the Faculty unless he completes the required number of credits for the same within five years of his first registration in First year.

Under special circumstances, a candidate who has interrupted his studies after having completed at least thirty credits arising out of courses given in this Faculty may be permitted by the Dean or the Associate Dean for Student Affairs, upon recommendation of the Admissions Committee, to continue his studies. In such event, the period of interruption shall not be included in the calculation of the five year period.

Candidates proposing to apply for transfer from other law faculties are required to remain in residence for a minimum of two years at the University for the obtaining of a B.C.L. or LL.B. degree.

18. In his first year in the Faculty, a candidate shall register for all the courses listed in either Part I or Part II of Appendix I (First year Program), depending on the program into which he has been accepted. In order to obtain credits for such courses, a candidate must obtain a passing grade.

If the candidate obtains the grade of F in any of the First year courses, he shall (i) be obliged to re-register for and pass such courses, and (ii) not be allowed to register for any course for which any such First year course is a prerequisite.

19. In his subsequent terms, a candidate must register for and pass all courses indicated as obligatory in Appendix II ("Canadian", civil or common law). Candidates proceeding to either of the legal professions of the Province of Quebec must register for all courses indicated in Appendix III. Candidates are referred to their local legal profession regulations.

A candidate must obtain a passing grade in order to obtain credit in any course.

20. In no case shall a candidate who has obtained the grade of F in a course be allowed to proceed to courses for which such course is a prerequisite.

21. All grades obtained by a candidate shall be included in his transcript, including both grades in the course where a regular supplementary examination is written.

22. A candidate may re-register again for any course in which he has not obtained a passing grade. There is no limit as to the number of times that a candidate may re-register for a course, subject to regulation 17.

Except as provided for in regulations 18 and 19 (Appendices I and II courses) a candidate is not under the obligation to re-register for a course in which he has not obtained a passing grade.

23. A candidate who registers for a course a second time must comply with all assignments.

24. It is not permissible for an essay or other paper to be submitted twice.

25. No thesis, essay, or paper, is, in the absence of the express permission of the Faculty, received by the Faculty otherwise than on the basis that, save as indicated thereon or therein. the candidate submitting it is its sole author, and that it has not been and is not concurrently being submitted to any other Faculty or University for any degree, diploma, or certificate, or for credit towards the same, or to this Faculty for any other course.

Every degree, diploma, or certificate, and every credit towards them, is given in reliance on the truth of each of those representations.

A breach of this regulation in relation to any assignment shall result in an F grade for that assignment and, in case of grave breaches, may also result in an F grade for the course in

which the assignment was submitted.

25a. The following are the University Examination Regulations. Their breach, or the breach of any other rule, regulation or condition relating to examinations, whether established by or under the authority of the University, the Faculty, the Dean, or the Examiner, as the case may be, constitutes, according to circumstances, a breach of University discipline, and may be dealt with as such under the rules in force from time to time concerning University discipline.

"1. No candidate for examination may bring into the examination room any books, notes, or other material containing information pertaining to the examination unless such material is allowed by the examiner.

2. If books, notes, etc., cannot be left outside the examination room they must be put in a place designated by the Invigilator before the candidate goes to his seat. When needed, mathematical tables, etc., will be supplied in the examination room.

3. Talk or communication between candidates is forbidden.

4. Candidates must not use or attempt to use any improper source of information.

5. Students writing examinations are responsible for arriving at the right time and place. The plea of inadvertence or forgetfulness cannot be accepted.

6. The doors of the examination room will open ten minutes before the hour of starting and will close on the hour. All students coming after that time must wait quietly outside until the doors are reopened, generally 10-15 minutes after the examination commences.

7. Candidates are not permitted to leave the examination room until one half hour after the examination has begun, and in no case before the attendance has been taken. A candidate who leaves before the examination is over must hand in an answer book. Candidates will not be permitted to enter the examination room more than one half hour after the beginning of the examination, except by special permission of the Dean or his representative.

8. Candidates must remain in their seats. If they wish to speak to the Invigilator (e.g. to ask for additional supplies) they should raise their hand.

9. Questions concerning possible errors, ambiguities, or omissions in the examination paper must be directed to the Invigilator, who will investigate them through the proper channels. The Invigilator is not permitted to answer questions other than these concerning the paper.

10. No information of any kind that might be of assistance to another candidate is to be written on the question paper. All work must be done in the answer book provided and all books must be handed in. The books must not be torn or mutilated in any way.

11. At the close of the examination candidates must stop writing and hand in their books at once.

ANY BREACH OF THESE REGULATIONS WILL BE REPORTED TO THE CHIEF INVIGILATOR. IF THE OFFENCE IS SERIOUS IT WILL BE REPORTED TO THE SENATE BY THE DEAN OF THE FACULTY. A STUDENT FOUND GUILTY OF CHEATING OR ATTEMPTING TO CHEAT IS LIABLE TO EXPULSION FROM THE UNIVERSITY."

25b. In addition, and without prejudice to the application of disciplinary sanctions, if any, compliance with all such rules, regulations and conditions is a condition of obtaining credit for courses.

Failure to comply shall, according to the Dean's judgment as to the seriousness of the circumstances, result in an F grade for the particular examination or for the course as a whole, or a reduced grade in the one or the other.

25c. No candidate who fails a course as a result of the application of regulations 25 or 25b shall be entitled to take a supplemental examination in that course. Nevertheless, when in his discretion the Dean considers it just in the circumstances, he may permit a candidate to do so, provided the candidate is qualified in other respects to take that supplemental examination.

25d. The application of Regulations 25, 25b and 25c shall rest with the Dean or his delegate (not being the instructor for the course) who shall require the persons involved to appear before him so that he may dispose of the matter.

When it appears to an examiner, invigilator, or other person in authority that a breach of Regulation 25 or 25a has taken place, he shall note the alleged offence, and, where possible, the time thereof, on the paper, and report the matter promptly to the Dean.

25e. Regulations 25a to 25d shall be posted in a prominent place in the Faculty.

3.5 EVALUATION OF STUDIES

26. Examinations, term papers and essays may be written in either English or French. Participation in Moot Courts may also be in either language. Examination questions are set in the language in which a course is given.

27. In order to obtain credits for his courses, a candidate must obtain a passing grade.

Grading will be as follows:

Pass

A (A+: see note)
B (B+: see note)
C
P: equivalence (see reg. 48);
Supp: passed after supplemental examination.

Fail

F
F. supp: Fail after supplemental examination.

NOTE: The grades of A+ and B+ are awarded to indicate superior performance in the A and B groups.

28. The work done by a candidate in any given course may be assessed on the basis of examinations, papers, essays or class, group, or tutorial participation, or other academic activity. However, all candidates in a course shall be subjected to at least one common type of assessment. Joint work by two or more students for credit is not permitted without the special leave of the instructor.

29. Essays and papers are due on the last day of the term in which they are being written unless otherwise indicated. Where any required paper or essay is not submitted on its due date, in the absence of a medical certificate or analogous circumstances, a reduction of one level of grading shall be made for each day (excluding Saturdays, Sundays and legal holidays) that the submission is late. Thus, for example, a paper that would have been graded A+ if it had been submitted on time, would be graded A if submitted one day late, B+ if two days late, B if three days late, and so on in accordance with the scale in regulation 27.

30. The assessment in First year courses (as enumerated in Appendix I) shall include a final written examination to which shall be allocated at least sixty per cent of the weight of grading allotted to each such course. Mooting and tutorials are not subject to the present regulation.

31. The following courses are to be treated for evaluation purposes as full year courses: Obligations I, Contracts I, Torts I, Property IA, Trusts & Gifts I, and Constitutional Law IA & IB, Taxation I, Civil Procedure II, Public International Law I, Criminal Law and Procedure I, Evidence IA, Legal Problems in the Government Control of Business.

32. Any oral examination shall be jointly conducted by the examiner and the co-examiner and the grade shall be given by the examiner in consultation with the co-examiner.

33. No candidate may take an examination or otherwise obtain credits for a course unless he has registered for the same and has completed the requirements.

34. All grades are posted in a prominent place in Chancellor Day Hall after each examination session. Such posting shall constitute adequate communication of results for all purposes and candidates shall be deemed to have notice of their grades as of the date of posting.

35. There are three general examination sessions in the academic year: one regular session at the end of each term and one supplementary session to be held preceding the start of the fall term. Dates for the supplementary session shall be posted with the grades after the spring term.

36. Essays and other papers are written under the name of each candidate. Written examinations are anonymous, according to the procedure established by Faculty.

37. Written examinations shall have a maximum duration of three and one half hours inclusive of reading time.

38. When a candidate has not passed a course he has the right to a reread of all written assignments in that course provided that he applies within seven days of the communication of

the result and pays the prescribed fee (ten dollars for each paper with a maximum charge of fifty dollars) to McGill University. The fee shall be reimbursed should a passing grade be obtained after the reread.

39. Written assignments which have been reread receive the grade which is given by the co-examiner in consultation with the examiner. Other assignments, if any, in the course, keep their grades unchanged. The grade assigned to the course as a whole is then recalculated, giving to the grade on each assignment its appropriate weight. Subject to the following rules, the course grade so recalculated is final.

40. Supplemental examinations are allowed subject to the present regulations. Candidates shall be admitted to (i) *regular* supplemental examinations where having obtained the grade of F in a course, they satisfy the conditions below, or (ii) *special* supplemental examinations in cases where they have been excused from earlier assessments or regular examination sessions by reason of illness or analogous causes. Supplementals in mooting consist of the writing of new factums and the presentation of fresh oral arguments.

41. No candidate shall be admitted to regular supplemental examinations if, under Regulation 15, he must withdraw from the Faculty, nor may any candidate write more than the following number of regular supplemental examinations:

(i) one supplemental examination in a course worth more than seven credits; *or*

(ii) two supplemental examinations in a course or courses worth altogether seven or fewer credits.

42. By commencing to write any examination, a candidate waives the right to plead any causes which would entitle him to a *special* supplemental, unless these causes occur in the course of the examination.

43. Application for *regular* supplemental examinations must be made within one month of the posting of the results by the Faculty after the regular examination session at the end of the spring term, and must be accompanied by the prescribed fee (ten dollars for each paper with a maximum of fifty dollars) to McGill University.

Application for *special* supplemental examinations by candidates who were excused by reason of illness or analogous causes must be made to the Dean or the Associate Dean for Student Affairs within one month of the end of the relevant examination session (or as soon as the illness has terminated). The application must be in writing and be accompanied by the prescribed fee (see above).

44. The supplemental examination is a written examination set by the examiner and graded by him in consultation with the co-examiner. The grade obtained in the supplemental examination is the grade of the course as a whole, and is final and not subject to appeal whether by way of reread, further supplemental examination, or otherwise. The grade first obtained in the course shall be included in the transcript in all cases, followed by the grade obtained as a result of a supplemental examination.

45. Grades obtained by candidates as a result of supplemental examinations shall appear as follows on their transcripts:

i) where the supplemental examination was taken after the grade of F was obtained in a course, a passing grade shall be indicated as "Supp." (passed after supplemental examination), and a failing grade shall be indicated as F Supp. (failed after supplemental examination);

ii) where the supplemental examination was taken as a result of illness or analogous causes, the regular grades, as set out in regulation 27, shall apply.

46. Honours points are awarded as follows:

Grade in Course	Honours Points
A+	4 honours points (per credit)
A	3 honours points (per credit)
B+	2 honours points (per credit)
B	1 honours point (per credit)
F,F. Supp.	Minus 1 honours point (per credit)

No honours points are awarded for grades of C, P, Supp. However, negative honours points shall be calculated in the candidate's average where the grade of F or F. Supp. is obtained.

Final honours are awarded on the basis of the honours points average.

The honours points average is calculated by multiplying the number of honours

points obtained in each course by the number of credits allotted to that course (including the double set of minus honours points where regular supplemental examinations are written and failed), adding all the products so obtained, and dividing that total by the sum of the credits of all the courses for which the candidate registered, including double sets of credits where regular supplemental examinations are written and including generally all courses in which he obtained C, Supp., F or F Supp. but excluding all courses where the candidate obtained P.

47. Degrees in the Faculty are granted as follows:
– First class honours: honours points average of 2.5 and over.
– Upper Second class honours: honours points average of 1.5 and over.
– Lower Second class honours: honours points average of 0.8 and over.
– Pass.

48. Credits are given as follows as equivalences (regulation 27):

	Credits 1st tm	2nd tm
a) Legal Clinic (where this has been elected, and upon the recommendation of the Attorney-Director of the Clinic)	2	2
b) McGill Law Journal (upon the recommendation of the Faculty adviser)		
i) Editor in Chief (496-041D)		6
ii) Executive Editor (496-042D)		4
iii) Managing Editor (496-042D)		4
iv) Other members of Senior Board (496-043D)		2
c) Moot Court Board (upon the recommendation of the Faculty adviser)		
i) Chairman (496-044D)		4
ii) Vice Chairman (496-045D)		3
iii) Four members of the Senior Board (each) (496-046D)		2
d) Courses completed and passed outside this Faculty (regulation 10)		
e) Group Assistants (see regulation 56)	2	2
f) Mooting I (see regulation 50)	—	1
g) Mooting II (see regulation 50)	1	—

49. (1) Final transcripts of candidates who have successfully obtained a B.C.L. or LL.B. degree shall include the following:
a) the grade obtained in each course;
b) the credit weight of each course;
c) the classification of the degree determined in accordance with regulation 47 and the number of candidates in the graduating class who fall into each of the classifications;
d) a list of prizes granted.
(2) Interim transcripts shall include:
a) the grade obtained in each course;
b) the credit weight of each course;
c) a list of prizes granted.
(3) For the purpose of this Regulation, candidates obtaining their degrees at the Fall convocation shall be integrated with all candidates graduating in that calendar year.

3.6 TUTORIALS AND MOOTING

50. Each candidate shall in his First year participate in the Faculty's Moot Court and Group Tutorial programs. Each candidate shall, after First year, participate in the post-First year Mooting Program to the extent of at least one round.

3.7 GROUP ASSISTANTS

51. Group assistants are students who assist in the teaching of First year courses. They must have successfully completed at least two terms in the Faculty.

52. Those courses in which there will be openings for Group Assistantships will be announced. Candidates desiring to act as Group Assistants in one of those courses will so indicate in their course registration sheets. The Chairman of the Admissions Committee, together with the professors in charge of the courses involved, will select the Group Assistants from amongst those who have indicated their desire to serve.

53. In making the selection of candidates, the Chairman of the Admissions Committee and the professors involved shall rely, *inter alia*, on the overall academic performance of each candidate.

54. A candidate may not hold more than one Group Assistantship per term.

55. Group Assistantships carry a weight of two credits per term. A Group Assistant meets with the professor in charge of the course and with the First year group as specified by the professor. At the end of the course, the Group Assistant files a report containing an assessment of the work done, of the methods used and of his own performance.

56. The authorization of equivalence (see regulations 48 and 27) shall be given by the professor in charge of the course and shall be based on the candidate's performance and on his final report.

3.8 CHANGES IN REGULATIONS

57. These Regulations and the other provisions contained in this calendar are subject to change at any time.

3.9 APPENDIX I FIRST YEAR PROGRAM

PART I: B.C.L. DEGREE

		Credits 1st tm	2nd tm	
492-116A.	Foundations of Can. Law	2		
472-140D.	Obligations I	4	4	
573-144A.	Property I	3		
473-145B.	Property II		3	
491-101D.	Constitutional Law IA or IB	3	3	
491-111D.	Criminal Law and Procedure I	2	2	
472-119B.	Evidence and Procedure I		3	
476-185D.	Mooting I		1	full year program
476-187D.	Tutorials I	2		
		16	16	

PART II: LL.B. DEGREE

		Credits 1st tm	2nd tm	
492-116A.	Foundations of Can. Law	2		
482-142D.	Contracts I	3	3	
485-179D.	Torts I	3	2	
483-146D.	Property IA	2	2	
483-148B.	Property IIA		2	
491-101D.	Constitutional Law IA or IB	3	3	
491-111D.	Criminal Law and Procedure I	2	2	
476-185D.	Mooting I		1	full year program
476-187D.	Tutorials I	2		
		17	15	

3.10 APPENDIX II
POST-FIRST YEAR PROGRAM
Obligatory Courses for B.C.L. and LL.B. Candidates

PART I: B.C.L. DEGREE

		Credits 1st tm		2nd tm	Prerequisites
1. Civil Law courses					
473-253A.	Special Contracts I	3			Obligations I
473-255B.	Successions			3	Obligations I or Property I & II
475-273A.	Family Law I	3	or	3	
2. Common Law courses					
One of the following:					
482-142D.	Contracts I (3+3) or				
485-179D.	Torts I (3+2) or				
483-146D.	Property IA and				
483-148B.	Property IIA (2+2+2)				
3. 486-186D. Mooting II		1			

Each candidate shall, after First year, participate in the post-First year Mooting Program to the extent of at least one round.

PART II: LL.B. DEGREE

		Credits 1st tm		2nd tm
1. Common Law courses				
482-236A.	Procedure IIA	3		
2. Civil Law courses				
472-140D.	Obligations I	4		4
473-144A.	Property I	3		
473-145B	Property II			3
together with at least 6 additional credits				
obtained from amongst the following courses:				
472-119B.	Evidence and Procedure I			3
473-255B.	Successions			3
473-253A.	Special Contracts I	3		
473-253B.	Special Contracts II			3
A Comparative Law course		2	or	2
3. 486-186D. Mooting II		1		

Each candidate shall, after First year, participate in the post-First year Mooting Program to the extent of at least one round.

3.11 APPENDIX III
POST-FIRST YEAR PROGRAM
Obligatory Courses for Candidates Proceeding to the Legal Professions

PART I: BAR OF QUEBEC

		Credits 1st tm	2nd tm
1. "Canadian" courses			
494-366A.	Business Associations I	3	
494-367B.	Business Associations II		3

		Credits	
		1st tm	2nd tm
471-316B.	Private International Law I		3
491-313D.	Taxation I	2	2
494-465A.	Banking and Negotiable Instruments	2	
495-368A.	Labour Law I (special course)*		
493-434B.	Bankruptcy (special course)*		

*These special courses are for those intending to qualify for the legal professions without taking Labour Law I (495-369A) and Bankruptcy (493-435B), these latter being the regular courses.

PART II: NOTARIAL PROFESSION – QUEBEC

Candidates are referred to the regulations of the Board of Notaries.

PART III: ONTARIO

Extract from the Regulations of the Law Society of Upper Canada:

"3. *Curriculum*

(a) An approved law school shall offer instruction regularly in the following subject areas:

Agency
Banking and Bills of Exchange
Civil Procedure
Company Law
Conflict of Laws
Constitutional Law
Contracts
Criminal Law and Procedure
Equity
Evidence
Family Law
Jurisprudence or one subject of a jurisprudential nature
Labour Law
Legal History
Legislation and Administrative Law
Municipal Law
Partnership
Personal Property
Real Estate Transactions
Real Property
Sale of Goods
Taxation
Torts
Trusts
Wills and Administration of Estates

(b) It is understood that the different subject areas may be variously combined or subdivided at the different law schools, hence the above list should be regarded as indicating areas of the law in which instruction will be regularly offered. The list should not be regarded as necessarily establishing courses that must be taught separately or in combination under these specific labels. For example, 'Legislation' and 'Administrative Law' might be two separate courses under those names, whereas 'Personal Property' and 'Real Property' might be combined into a single course entitled 'Property'. Or, under a heading like 'Remedies', substantial parts of 'Civil Procedure', 'Contracts' and 'Property' might be combined. The same sort of thing could be done under the heading 'Commercial Law'.

(c) Every student shall be required to take the major basic course offered in each of the following subject areas:

Civil Procedure
Constitutional Law of Canada
Contracts
Criminal Law and Procedure
Personal Property
Real Property
Torts

(d) It is understood that subject to subparagraph 3 (c), the academic planning authority of each approved Law School may provide any or all courses to its students on a required or an optional basis; may require students to elect between alternative courses or groups of courses to attain either diversification or specialization to an extent deemed desirable and may add courses to its curriculum on a required or an optional basis or an optional basis in subject areas other than those listed in subsection 3 (a)."

PART IV: NEWFOUNDLAND

Applicants for admission to the Law Society of Newfoundland who graduate in 1974, or thereafter, *must include* in their program of studies two basic major courses in the following areas:

Canadian Constitutional Law
Civil Procedure

Contracts
Criminal Law and Procedure
Personal Property
Real Property
Torts
and, in addition, *should include* two major basic courses in the following subject areas:
Commercial Law
Corporation Law
Evidence
Family Law
Will s and Trusts
Shipping.

Applicants whose academic qualifications do not include the recommended subject areas may be ineligible for admission to the Law Society of Newfoundland without further exams in subject areas not included in their academic programs.

PART V: OTHER PROVINCES

Subjects considered as of prime importance for the practice of the law in the Common Law Provinces: As noted above, the Law Society of Upper Canada in 1969 reduced the number of subject areas in which instruction was to be mandatory from 23 to 7, namely civil procedure, constitutional law, contracts, criminal law and procedure, personal property, real property and torts. This reduction was a cause of concern to the Bars of certain other provinces, the opinion being held by some being that unless certain other courses were also taken, candidates would not be adequately prepared for the practice. Rather than reducing the portability of LL.B. degrees from one province to another by the stipulation of additional compulsory courses, it was decided that the attention of candidates should be drawn to certain additional subjects that are considered to be of prime importance for the practice of law. These are family law, evidence, wills and trusts and commercial and corporation law. Candidates are accordingly advised to take these additional courses. Those who do not take them will not be refused admission to the Bar, but the Bars in question will review the regulations as to subjects required to be taken after experience has been gained as to whether the candidates who present themselves have taken a sufficiently broad range of subjects.

NOTE: The subjects listed as being required or desirable for Bar purposes are in some instances taught by the Faculty under different course names.

3.12 APPENDIX IV
Obligatory Courses for the National Program (Double Degree)

PART 1: LL.B. DEGREE (AFTER B.C.L.)

In order to gain admission, the holder of a B.C.L. degree must have taken and passed, during the B.C.L. program, Property IA & IIA, and either Contracts I, or Torts I.

	Credits	
	1st tm	2nd tm
Property IA	2	2
Property IIA		2
Contracts I	3	3
Torts I	3	2
Trusts & Gifts I	3	2
Real Estate Transactions		3
Evidence IA	2	2
Family Law IA		3
Commercial Transactions	3	
Civil Procedure IIA	3	

PART 2: B.C.L. DEGREE (AFTER LL.B.)

In order to gain admission, the holder of an LL.B. degree must have taken, and passed, during his LL.B. program, Obligations I and Property I & II. (It is to be noted that candidates entering the first year of the LL.B. program in 1972-73 or subsequent years are obliged to take in their

LL.B. program a larger number of basic civil law courses whether or not they intend to proceed subsequently to the B.C.L. degree.)

	Credits		
	1st tm		2nd tm
Obligations I	4		4
Property I	3		
Property II			3
Family Law I	3	or	3
Succession			3
Evidence & Procedure I			3
Special Contracts I	3		
Special Contracts II			3
Civil Procedure II	2		2
Family Law II (Matrimonial Property Law)			2

4 COURSES OF INSTRUCTION

492-116A FOUNDATIONS OF CANADIAN LAWS (2 hours, first term). Survey of the Canadian legal system on historical, analytical and comparative lines.

Professor H.P. Glenn

491-101D CONSTITUTIONAL LAW IA (Required Materials – Lyon and Atkey, Canadian Constitutional Law in a Modern Perspective: 1970; 3 hours throughout the year). This course attempts to put constitutional law into a contemporary perspective. It deals with the traditional principles and materials – e.g. the rule of law, the supremacy of Parliament, the workings and relationships of our institutions of government, human rights, and the distribution of legislative powers – but within an organizing framework that is specifically designed to bring out the function of law in an open society.

Professor Cotler (Section 01)
Professor Lyon (Section 02)

491-101D CONSTITUTIONAL LAW IB (3 hours throughout the year; not given 1973-74.) Rules governing introduction of laws and creation of institutions. Imperial and local authority; repugnant and extraterritorial legislation; constitutional amendment processes. Government and lawmaking according to law; nature and techniques of judicial review; parliamentary sovereignty controversies. Crown and executive power; law and convention; Queen, governors, other public officers. Specific executive powers and immunities in domestic and external affairs; treaty making and implementation; extraterritorial competences, current controversies. Civil liability of the crown, its officers, and other public authorities; proprietary rights and distribution of powers. Courts; superior and inferior courts, constitution, composition, and incidents; litigants' immunities; civil and criminal contempt; trends to federalization; ultimate appellate jurisdiction. Parliament and provincial legislatures; constitution, composition, and privileges of houses and members; public and private legislation. The federal system and distribution of powers. Effect in each province of laws and judicial acts of others. Boundaries, powers, proprietary and other rights as objects of litigation. Civil liberties. A problem approach, with opportunity to draft bills and legal proceedings, will be attempted.

Professor Scott

491-401A ADMINISTRATIVE LAW I (3 hours, first term). The relationship between law and the administrative process; problems of delegation; procedures and powers of administrative tribunals; judicial and legislative control of administrative action.

Professor Lyon (Section 01)
Mr. D.P. Jones (Section 02)

491-402B STATUTE LAW (2 hours, second term). This course will include study of the legislative process, the statute as a legal instrument, its various classifications, purposes and forms, styles of legislative drafting, codification, delegation of

legislative power and subordinate legislation, the process of interpretation, interpretation statutes and rules of construction. The course will include exercises in drafting and annotation.
Professor Lyon

491-403A MUNICIPAL LAW (2 hours, first term). Municipal institutions in the Province of Quebec and their constitution and powers. Judicial review of the acts of municipal authorities and officers, in the general context of administrative law. Juridical nullity and other problems. Municipal taxation. Civil responsibility.
Professor Scott
(Mr. Kimmel during Professor Scott's leave of absence.)

491-105D PUBLIC INTERNATIONAL LAW I (2 hours throughout the year). The traditional fields of International Law including nature and sources; recognition, territory and acquisition of territory; jurisdiction on the high seas; nationality; diplomatic and consular privileges and immunities; responsibility of states; interpretation of treaties; legal control of force and aspects of the U.N. Charter; special Canadian problems of International Law.
Professor Vlasic

491-406A PUBLIC INTERNATIONAL LAW II (PROBLEMS OF INTERNATIONAL LAW AND ORGANIZATION) (2 hours, first term). An analytical examination of the Charter of the United Nations and a study of the development of International law and organization by and through the various organs of the United Nations and of the specialized agencies. *Prerequisite: Public International Law I.*
Professor Maxwell Cohen

492-438B PUBLIC INTERNATIONAL LAW III (LAW OF THE SEA) (2 hours, second term). This course will deal with the main rules governing the regime of the high seas; nationality of ships; territorial waters; fishing control zones; pollution control zones; the exploitation of the continental shelf and the ocean seabed; special legal problems of jurisdiction in the Arctic; the Geneva Conventions of 1958 and developments since that date dealing with all phases of high seas and coastal waters questions; new threats to the oceanic environment and the legal and administrative consequences; the role of the United Nations and other agencies; special bilateral relations between Canada and the United States; Canada and France; special Canadian fisheries control experience; the emergence of a new law of the sea; international and inter-oceanic canals and seaways with particular reference to the St. Lawrence Seaway. *Prerequisite: Public International Law I.*
Professor Maxwell Cohen

491-404A PUBLIC INTERNATIONAL LAW IV (International Law of Human Rights) (2 hours, first term). The international protection of human rights, particularly by the United Nations, its Specialized Agencies and the Council of Europe. Topics covered will include the Charter of the United Nations, the Universal Declaration of Human Rights, the two covenants and other human rights treaties, humanitarian intervention, diplomatic protection of foreigners, the prevention of discrimination and the protection of minorities freedom of information, the status of women, self-determination, implementation etc. There will be a written examination.
Professor Humphrey

491-405B PUBLIC INTERNATIONAL LAW V (International Law of Human Rights) (2 hours, second term). A seminar covering approximately the same subject matter as Public International Law IV. Students will be expected to lead a discussion in class and to write a term paper on some aspect of human rights. Subjects will be assigned after discussion at the beginning of the course. There are no pre-requisites, but students are advised to take the course in the same subject in the first term.
Professor Humphrey

491-407A AIR AND SPACE LAW (2 hours, first term). The legal regime of air space and outer space; review of the more important activities in these environments, including international flight, and their legal regulation. Administrative and private air law in Canada.
Professor Bradley

491-408A BILINGUALISM AND THE LAW (2 hours, first term). A study of the relation between law and language in Canada, with special reference to such topics as the language rights guaranteed by the constitution, the language of instruction in schools, Official Languages Acts, recommendations of the B and B Royal

Commission, and (if available) the Gendron Commission. A paper is required. Limited to ten students. **Professor Frank Scott**

491-409A CIVIL LIBERTIES IN CANADA (2 hours, first term). A study of some contemporary issues of civil liberties in Canada. **Professor Cotler**

491-111D CRIMINAL LAW AND PROCEDURE I (2 hours, throughout the year). The exploration of major problems in criminal law and its administration; emphasis on basic concepts and procedures which govern the implementation of the Criminal Code in Canada. **Professor Sklar (Section 01)**
Mr. Yarosky (Section 02)

Mr. Fish will lecture on Evidence & Procedure in Criminal Law as part of this course.

491-410A DROIT CRIMINEL II (LA PREUVE EN DROIT CRIMINEL) (2 heures, premier semestre). La loi de la preuve et les règles de preuve en droit criminel; étude des principes et de leur application. *Prerequisite: Criminal Law and Procedure I.*
Mr. Proulx

491-420B CRIMINAL LAW III (CRIMINAL PROCEDURE) (2 hours, second term). Principles of procedure as they apply to criminal cases. *Prerequisite: Criminal Law and Procedure I.* **Mr. Shadley**

491-421A CRIMINAL LAW IV (CRIMINAL LAW REFORM) (2 hours, first term; not given in 1973-74). *Prerequisite: Criminal Law and Procedure I.* **Professor Cotler**

491-418A CRIMINOLOGY I (2 hours, first term). A study of the aims of the penal system with particular reference to defining limits of the scope of criminal behaviour and the purposes of punishment. *Prerequisite: Criminal Law and Procedure I.*
Professor Jacobson

491-419A CRIMINOLOGY II (The Processing of the Offender: Legal, Psychiatric and Social Work Perspectives) (2 hours, first term). An examination of the role of the lawyer, psychiatrist and social worker in the processing and treatment of offenders. Problems characteristic of practice in each of these professions will be studied as they interact in the criminal process. The seminar will be conducted jointly by faculty members drawn from Law, Psychiatry and Social Work. It will be open to a limited number of students in Law, Medicine and Social Work who have a particular interest in the field of criminology. *Prerequisites: a previous course in criminal law, criminology or corrections or the approval of the instructors.*
Professor Jacobson with
Dr. C. Angliker of the Forensic Psychiatry Clinic, and
Dr. P. Deehy, of the School of Social Work

491-313D TAXATION I (2 hours throughout the year; Required Materials – Caron, Cases and Materials on Taxation). The history and general principles of Canadian Income Tax Law. The emphasis is on Federal, Personal and Corporation Tax with some reference to Quebec Income tax rules. **Professor Caron (French Section 01)**
Mr. Rapkin (English Section 02)
Mr. Stavert (English Section 03)
Mr. Verchere (English Section 04)

491-413B TAXATION II (2 hours, second term). The importance of tax considerations in common commercial transactions, both domestic and international. *Prerequisites: Taxation I, Special Contracts I and II.* **Mr. Donald J. Johnston**

493-414B TAXATION III (ESTATE PLANNING) (2 hours, second term). The course deals with Quebec succession duties and gift tax; the taxation of trusts and estates; and the planning techniques utilized to minimize tax and to provide for an orderly administration and distribution of property during life and on death. *Prerequisites: Successions or Trusts and Gifts and Taxation I.*

491-415A TAXATION IV (TAX POLICY) (2 hours, first term). Public aspects of tax legislation; constitutional problems; federal-provincial agreements; tax sharing and equalization; municipal aspects. Social problems in policy; wealth tax; negative tax and redistribution of resources. *Prerequisite: Taxation I.* **Professor Caron**

491-417A TAXATION V (CORPORATE TAXATION) (3 hours, first term). The course considers, in depth, problems unique to corporations and their shareholders including the small business deduction and refundable taxes; distributions to

shareholders; corporate reorganizations and liquidations; and the capital gain and "rollover" implications. *Prerequisites: Taxation I and Business Associations.*
Mr. Rapkin

491-416B TAXATION VI (INTERNATIONAL TAXATION) (2 hours, second term). The course covers the taxation of non-residents with income from employment, business or property in Canada; the taxation of Canadian residents with income from employment, business or property outside of Canada; foreign tax credits; and the application and importance of tax treaties. *Prerequisite: Taxation I.*
Mr. Rapkin

471-316B PRIVATE INTERNATIONAL LAW (CONFLICT OF LAWS) (3 hours, second term). The function, nature and sources of Private International Law. Conflicts of laws; formulation and development of conflict rules; interpretation of conflict rules (characterization, incidental questions, renvoi, conflits mobiles); operation of conflict rules (application of foreign law, substitution of the laws of the forum). Conflicts of jurisdiction and recognition of foreign judgments.
Professor Cayne (Section 01)
Professor H.P. Glenn (Section 02)

472-119B EVIDENCE AND PROCEDURE I (B.C.L.) (3 hours, second term). A general introduction to the Canadian judicial system, civil procedure and evidence, with specific reference to the law of Quebec.
The Hon. Mr. Justice Aronovitch (Section 01)
The Hon. Mr. Justice Hugessen (Section 02)

472-417D CIVIL PROCEDURE II (B.C.L.) (2 hours throughout the year). Incidental proceedings including examinations on discovery; trial in the Superior Court and the examination of witnesses; incidents of trial; trial by jury; provisional remedies; special proceedings, including the substantive law relating to the exercise of the traditional prerogative writs; remedies against judgments, including procedure in the Court of Appeal; non-contentious proceedings. *Prerequisite: Evidence & Procedure I.*
Mr. W. Hesler (Section 01)
Mr. Irving (Section 02)

472-459B CIVIL EVIDENCE II (B.C.L.) (2 hours, second term). Principles of Law of Evidence with emphasis on substantive rules in civil law. **Mr. Wex**

482-236A CIVIL PROCEDURE IIA (LL.B.) (3 hours, first term). Common law historical development of the rules of procedure and forms of action; traditional common law remedies; pleadings, motions and discovery; forms of trial and methods of proof; rules and organization of the courts; jurisdiction and judgments. Emphasis on Ontario Judicature Act and Rules of Practice. **Mr. Max**

482-418D EVIDENCE IA (LL.B.) (2 hours throughout the year). The development of Common Law principles of civil and criminal evidence and their application. Problems of proof, admissible and inadmissible facts, presumptions and policy considerations; testing witness reliability in the court room; advocacy and trial tactics; function of judge and jury; relationship of rules of evidence to problems of deception, perception and memory. **Professor Sklar**
Note: Candidates are not permitted to take both Evidence IA and Droit Criminel II (La Preuve en Droit Criminel), save for students in LL.B. IV, who are obliged to take Evidence IA in any event.

492-422A MOOTING III (APPELLATE PRACTICE) (2 hours, first term). Students will be required to argue assigned cases orally and to prepare written factums. Emphasis will be on advocacy and development of skills in oral and written argument. Size of class may be limited to provide more experience for participants. **Mr. Blaikie**

492-436A INTRODUCTION TO COMPARATIVE LAW (2 hours, first term). Introduction to the comparative method; differences and similarities between the world's legal systems; a detailed study of selected topics. This course is open to undergraduate as well as graduate students. **Professor Hahlo**

472-140D OBLIGATIONS I (B.C.L.) (4 hours, throughout the year). The function of the law of obligations, the concept of obligations; the sources of obligations (the general theory of contractual and legal obligations); the performance of obligations; the general theory of civil responsibility (contractual and

extra-contractual); the extinction of obligations.
Professor Crepeau (French Section 01)
Professor Ronald Cohen (English Section 02)

475-477B OBLIGATIONS II (DROIT MEDICAL) (2 hours, second term). Problèmes de droit médical et hospitalier; greffes, consentement, legs et donations d'organes, régimes de responsabilité civile; contrat médical et hospitalier; évolution récente de la jurisprudence. *Prerequisite: Obligations I or Torts I.* **Professor Crepeau**

475-478B OBLIGATIONS III (AUTOMOBILE ACCIDENTS) (2 hours, second term). A seminar on compensation under Quebec law – a study of the Highway Victims Indemnity Act including the liability of the owner, driver, insurer and Indemnity Fund. Emphasis will be placed upon the present system with a comparative analysis of potential models for reform. *Prerequisites: Obligations I and Insurance.* **Mme Sinclair**

475-479B OBLIGATIONS IV (MODALITIES AND CAUSES OF EXTINCTION OF OBLIGATIONS) (2 hours, second term). Modalities: joint and several, conditional and alternative obligations and obligations with a term or penal clause. Extinction: payment, release, confusion, novation (and delegation of payment), compensation, frustration, etc. *Prerequisite: Obligation I.* **Professor Ronald Cohen**

482-142D CONTRACTS I (LL.B.) (3 hours, throughout the year). A study of the general theory and basic principles of the common law of contract in Canada – offer and acceptance, consideration, intent to create legal relations, privity and terms; standard form contracts, mistake, misrepresentation and discharge
Professor Field (Section 01)
Professor Slayton (Section 02)

482-434B REMEDIES (3 hours, second term). A study of the various common law remedies available at law and equity – remoteness, measure and mitigation of damages in tort and contract; liquidated, punitive and nominal damages; the incidence of taxation; declaratory judgments, specific performance, and injunction; actions for money had and received, quantum meruit, tracing and following. *Prerequisites: Torts I, Contracts I or Property IA. (Those electing this course are recommended to have taken all three of these subjects.)* **Professor Slayton**

473-144A PROPERTY I (B.C.L.) (3 hours, first term). The concepts of property, ownership and possession, and rights in property; the land titles registration system.
Professor Brierley

473-145B PROPERTY II (B.C.L.) (3 hours, second term; Required Materials for Professor Caron's section – Recueil de documents et arrêts sur les sûretés réelles – Civil Law Property II). The concepts of patrimony and security on property, moveable and immoveable; elements of the land titles registration system; hypothecs, privileges, pledge, with some consideration given to statutory securities on property. **Professor Caron**

483-146D PROPERTY IA (LL.B.) (2 hours, throughout the year). Ownership and the doctrine of estates; including interests of husband and wife, uses and the Statute of Uses with an outline of trusts and settlements, concurrent ownership, future interests and perpetuities, adverse possession. Commercial land law; easements and profits, restrictive covenants, licences, mortgages, landlord and tenant, fixtures.
Professor Waters (Section 01)
Professor Jane Glenn (Section 02)

483-149B PROPERTY IIA (LL.B.) (2 hours, second term). The basic principles of moveable property; ownership and possession; the acquisition and termination of ownership; gifts, bailments, sale of goods, security devices and non-consensual liens.
Professor Field (Section 01)
Professor Jacobson (Section 02)

483-148A PROPERTY IIIA (LANDLORD AND TENANT (LL.B.) (2 hours, first term). An examination of the relationship of landlord and tenant and of current problems affecting residential tenancies. *Prerequisite: Property IA.* **Professor Jacobson**

483-145B PROPERTY IVA (LAND USE PLANNING) (B.C.L. or LL.B.) (2 hours, second

term). A comparative study of private and public control of land use and development, involving: Master plans, zoning by-laws, subdivision control, urban re-development, expropriation, and regional planning. *Prerequisite: Property IA or Property I and II.*
Professor Jane Glenn

483-451B REAL ESTATE TRANSACTIONS (LL.B.) (3 hours, second term). Problems arising out of the vendor and purchaser relationship. The contract of sale in its drafting, interpretation and enforcement; fixtures, recording and land titles systems; mortgages. Particular emphasis will be placed upon the law of Ontario. *Prerequisite: Property IA.*
Professor Foster

483-453B FINANCING REAL ESTATE TRANSACTIONS (B.C.L.) (2 hours, second term). Particular emphasis will be placed on the protection to be given the hypothecary creditor, the methods of financing land acquisition and development; the special problems related to the financing of construction projects; the development of the emphyteutic lease and the net lease as a form of finance; the role of the lawyer in giving economic advice to his clients. *Prerequisites: Property I & II.*
Mr. Mettarlin

483-454B OWNERSHIP AND POSSESSION IN ROMAN LAW (2 hours, second term). A study of the concepts of Ownership and Possession in Roman Law and a comparative examination of these topics against the background of civil and common law. After an initial study of the Roman Law students will submit papers for class discussion. There will be no final examination but both the papers and individual participation in the classes will be assessed for the purposes of grading.
Mrs. Maryla Waters

483-449D TRUSTS AND GIFTS I (LL.B.) (3 hours, first term; 2 hours, second term). The nature of the trust in common law and civil law theory and practice; the various types of trust; the creation, operation, and winding up of trusts; including trustees' duties and powers, and the variation of trusts; breach of trust and the doctrine of tracing. Modern uses of the trust, including income tax, succession duty and estate tax considerations, pension funds, and charitable trusts. Gifts other than by way of trust; including *inter vivos* gifts and donations *mortis causa*; essentials of validity. *Prerequisites: Property IA & IIA.* **Professor Waters**

483-452B ADMINISTRATION OF DECEASEDS' ESTATES (LL.B.) (2 hours, second term). Wills: the requirements for a valid testamentary instrument, revocation, republication, incorporation by reference, and construction. Intestate succession; mode of descent. Appointment, powers and duties of personal representatives; collection and realisation of assets; payment of debts; distribution of assets, including problems of lapse and class gifts; legacies, including abatement and ademption. Overall the course will concentrate on problematic areas of the law rather than attempt a comprehensive survey of the law of wills, intestacy and administration. *Prerequisite: Trusts and Gifts I.* **Professor Waters**

473-253A SPECIAL CONTRACTS I (B.C.L.) (3 hours, first term). The contract of sale and the distinction between civil and commercial matters. *Prerequisite: Obligations I.*
Professor Durnford (Section 01)
Professor Cayne (Section 02)

473-254B SPECIAL CONTRACTS II (B.C.L.) (3 hours, second term). The contracts of lease, employment, construction, deposit, suretyship, loan and transaction, and the basic principles of insurance. *Prerequisite: Obligations I.*
Professor Durnford (Section 01)
Professor Cayne (Section 02)

473-255B SUCCESSIONS (B.C.L.) (3 hours, second term). The gratuitous transmission of property by reason of gift, will or legal succession. *Prerequisites: Obligations I or Property I & II.*
Professor Brierley (Section 01)
Mr. Garonce (Section 02)

493-435B BANKRUPTCY AND INSOLVENCY (2 hours, second term). Bankruptcy and insolvency in Canadian law. Scope, operation, and content of the relevant federal and provincial laws, with particular emphasis on the Bankruptcy Act, Winding-up

Acts, related statutes, and the general provincial law. Creditors' rights.
Professor Scott and Mr. Mendelsohn
(Mr. Mendelsohn alone during Professor Scott's leave of absence)

494-460B ADMIRALTY (2 hours, second term). Admiralty courts and jurisdiction, liens, carriage of goods by sea, salvage, collisions, and limitations of liability.
Professor Bradley

494-461A INSURANCE (2 hours, first term). This course covers problems in various branches of insurance law. **Professor Cayne**

494-462A COMMERCIAL TRANSACTIONS (LL.B.) (3 hours, first term). Sale of goods and sales financing; bulk sales; secured transactions. **Professor Field**

494-463A INTELLECTUAL AND INDUSTRIAL PROPERTY (2 hours, first term). Patents, trademarks, copyrights.
Mr. McLeod: Patents
Mr. Gadban: Trademarks
Mr. Amos: Copyrights

494-465A BANKING AND NEGOTIABLE INSTRUMENTS (2 hours, first term). Canadian law of negotiable instruments, with particular emphasis on the Bills of Exchange Act. The concept and attributes of negotiability. Bills of exchange, cheques, and promissory notes. Aspects of the law of moveable property; nature of ownership; the owner's remedies; their application to negotiable instruments; money as property and rights of recovery and tracing; assignment of debts, documents of title. Banker and customer; banker's security; letters of credit; credit cards and other recent developments. The relationship of federal and provincial laws.
Professor Scott and Mr. O'Brien
(Mr. O'Brien alone during Professor Scott's leave of absence)

494-366A & 367B BUSINESS ASSOCIATIONS I & II (3 hours, throughout the year). The different forms of business associations; partnerships, the nature of corporate personality; the two systems of incorporation; constitutional aspects; the raising and maintenance of a company's capital; the organs of the company, investors' protection; protection of minority shareholders; reconstruction and amalgamation of companies.
BUSINESS ASSOCIATIONS I: Professor Ish (Section 01)
Mr. Tees (Section 02)
BUSINESS ASSOCIATIONS II: Professor Ish (Section 01)
Mr. Grant (Section 02)
Mr. Pascal (Section 03)

494-464A ADVANCED CORPORATION LAW (2 hours, first term). Seminar on various corporate problems; aspects of study include taxation, corporate management and responsibility, shareholders' rights and securities regulation. *Prerequisites: Business Associations I & II.* **Professor Caron**

494-475B BUSINESS PLANNING (2 hours, second term). This seminar will deal with problems in the corporate law field. The treatment will include taxation and general civil and commercial law aspects. *Prerequisites: Business Associations I & II and Taxation I.* **Mr. McCarthy**

491-411D LEGAL PROBLEMS IN GOVERNMENT CONTROL OF BUSINESS (2 hours, throughout the year). Problems of state intervention into the economy with particular reference to anticombines legislation in Canada and elsewhere as illustrations of indirect intervention; and further materials on direct intervention, e.g., price and resource control, regulation of marketing, utilities, transportation and communications, consumer protection against unfair practices, hazards to health and safety and misleading advertising; Crown corporations; legal aspects of economic programs, e.g., Prices and Incomes Commission, fiscal and monetary policy. *Prerequisites: Business Associations I and II.*
Professors Maxwell Cohen and Green

492-437B COMPARATIVE COMPANY LAW AND THE MULTINATIONAL COMPANY: LAW AND PRACTICE (2 hours, second term). A comparative evaluation of Anglo-American and Continental company law systems — the harmonization of company laws within the European Common Market, and the 'European

Company' — international and multinational companies — structure and management of the multinational company — government control of the multinational company — international controls and the multinational company — anti-monopoly legislation and the multinational company — the Canadian experience. **Professors Hahlo and Maxwell Cohen**

493-436A ACCOUNTING (2 hours, first term). General principles of accounting of interest to members of the legal profession. **Mr. Hitzig**

495-369A or B LABOUR LAW I (2 hours, first or second term). An introduction to Canadian labour law including collective bargaining, arbitration and industrial relations generally. Emphasis on the Canada Labour code, the Quebec Labour Code and related statutes. **Mr. Heenan: First term**
Professor Meyer: Second term

495-470B LABOUR LAW II (2 hours, second term). Special problems in the development of labour law in Quebec and Canada. *Prerequisite: Labour Law I.* **Mr. Hartt**

495-471B ENVIRONMENT AND THE LAW (2 hours, second term). The basic objective of the seminar is to examine the actual and potential role of law in protecting the integrity of the human environment from threats posed by scientific and technological advances, rapid industrialization and population growth. Emphasis will be placed on the following subjects: air, water and sea pollution; hazards caused by the uses of nuclear energy; weather modification. If time permits, the inquiry will extend to other environmental hazards. **Professor Vlasic**

485-472B FAMILY LAW IA (LL.B.) (3 hours, second term). Marriage and divorce; the matrimonial property regime of the common law provinces; parent and child; guardian and ward; intestate succession and dependents' relief.
Professor Hahlo (Section 01)
Professor Jacobson (Section 02)

475-273A or B FAMILY LAW I (B.C.L.) (3 hours, first term or second term). The existence and attributes of physical persons; their capacity and incapacity by reason of age, relationship and mental facilities; the family; husband and wife; the law of marriage; its formation and its effects, especially with respect to the rights and duties of the consorts and their property; separation, the annulment of marriage and divorce. **Mme Groffier-Atala (French Section 01 — 1st term)**
Mr. Katz (English Section 02 — 1st term)
Professor Meyer (English Section — 2nd term)

473-456B FAMILY LAW II (MATRIMONIAL PROPERTY LAW) (B.C.L.) (2 hours, second term). The effect of marriage on the property rights of married persons, and their relations with third persons; the matrimonial regimes of the Quebec Civil Code. *Prerequisites: Family Law I and Property I.* **Professor Brierley**

485-179D TORTS I (LL.B.) (3 hours, first term; 2 hours, second term). Invasions of interests in persons, property, reputation, family relations and business; remedies and parties. **Professor Foster (Section 01)**
Professor Ish (Section 02)

495-481B COMPARATIVE CIVIL PROCEDURE (2 hours, second term). A survey of different techniques of civil justice, with emphasis on the laws of Germany, France, Québec, and Ontario. **Professor H.P. Glenn**

495-482B LAW AND POVERTY (3 hours, second term). The course will be organized around the following four themes: First, the nature, extent and meaning of poverty in Canada and the implications for anti-poverty planning and poverty law; second, the differential character of the law concerning rich and poor as reflected in case studies in criminal law, consumer law, housing law and welfare law; third, the perceptions of poverty and the poor by law and lawyers, and the perceptions of law and lawyers by the poor; and fourth, the "delivery systems" available for legal services to the poor — among topics to be considered here are alternative organizational models for legal services; the role of the law schools both ideologically in terms of curriculum and operationally in terms of legal services for the poor; the roles for government and the professional bar; and the

alternative action-oriented strategies for law reform.

Professor Cotler

485-483A CONSUMER PROTECTION (2 hours, first term). A seminar dealing with legal problems of general public interest, not necessarily limited to the protection of the individual citizen in his role as a consumer of goods and services. The course will be mainly concerned with the effects of mass communications and the modern industrial process on the quality of life and much time will accordingly be spent on the average citizen's access to systems of redress and the development of new methods. Topics will be selected in part by their relevance at the time of the seminar and may include the following. Advertising: self-regulation, the responsibility of advertising agencies and the media, methods of regulation employed by the Federal Trade Commission, advertising directed to children. Traffic accidents: Automobile safety standards, highway hazards, alcoholism, restraint systems, pedestrian safety. Systems of redress: the class action, Small Claims Court, *locus standi*. *Prerequisites: Special Contracts I or Commercial Transactions or permission.* Professor Ronald Cohen

492-420A CONTEMPORARY PROBLEMS IN LEGAL PHILOSOPHY (2 hours, first term). This seminar will consider the jurisprudential problems raised by civil disobedience and political revolution. The object of the inquiry is to investigate the basis of legal obligation. Professor Slayton

476-185D MOOTING I
476-186D MOOTING II

The Faculty's Moot Court Program is organized by the student-run Moot Court Board. In first year each moot is judged by a member of the Board and a member of the Bar. In the post-First year compulsory round, the moots are each judged by a member of the Board, a member of the Bar and a professor. These are followed by voluntary elimination and final rounds. Inter-Faculty moots are also arranged by the Board with other Law Faculties.

476-187D TUTORIALS I. This program involves the division of the First year class into small groups for carrying out written and oral assignments under the guidance of members of the professorial staff, together with instruction on Legal Bibliography under the guidance of the Law Librarian.

496-491A (THIRD TERM ESSAY)

496-492B (FOURTH TERM ESSAY)

496-496D (SECOND YEAR ESSAY)

496-493A (FIFTH TERM ESSAY)

496-494B (SIXTH TERM ESSAY)

496-498D (THIRD YEAR ESSAY)

496-495A (SEVENTH TERM ESSAY)

496-496B (EIGHTH TERM ESSAY)

496-499D (FOURTH YEAR ESSAY)

Students electing an essay must exercise great care in selecting the appropriate course number. The appropriate number will depend upon the term or year in which the essay is being written.

Each term a post-first-year candidate may write a substantial essay on a subject, or a number of shorter articles or notes on one or more subjects meeting the approval of the Dean or of the Associate Dean for Student Affairs, and of the member or members of Faculty to be responsible for supervision and grading. It is a condition of the elective that approval be obtained not later than the end of the first week of term (Regulation 11). In exceptional cases, where the subject-matter calls for a really substantial essay, special permission may be granted by the Dean, or the Associate Dean for Student Affairs, to spread the writing of an essay over two terms in one academic year; in such event it shall be deemed to constitute two electives and shall carry the weight of grading as such, and no other essays may be elected by such candidate that year.

The attention of candidates is drawn to the availability of Professors Meyer and Slayton for the supervision of essays in the field of Jurisprudence, of Professor Brierley in Canadian Legal History, and of Professor Slayton in the area of theories and methodologies of legal research (e.g. quantitative methods and the use of computers).

496-046A, 047B LEGAL CLINIC. Candidates may elect, with the permission of the Dean or the Associate Dean for Student Affairs, to work for credit in a legal aid clinic provided that such clinic has received the approval of the Dean. Candidates accepted for work in a legal aid clinic by the Attorney Director thereof may be granted the equivalence of two credits per term upon his recommendation. (See Regulations 27 and 48).

496-048, 049B GROUP ASSISTANTS. See regulations 51 and following.

McGILL LAW JOURNAL

496-041D	Editor in Chief	6 credits
496-042D	Executive Editor	4 credits
496-042D	Managing Editor	4 credits
496-043D	Other members of Senior Board	2 credits

MOOT COURT BOARD

496-044D	Chairman	4 credits
496-045D	Vice-Chairman	3 credits
496-046D	Four members of Senior Board (each)	2 credits

5 ADMISSION TO THE LEGAL PROFESSION

5.1 QUEBEC

Candidates for admission to the Quebec Bar must be Canadian citizens and must hold a diploma of college studies from a Quebec General and Vocational College (CEGEP) or a B.A. degree or its equivalent from a university or college of which the degree is recognized jointly by Laval, McGill, Montreal, Ottawa and Sherbrooke Universities and, in addition, by the Bar.

Candidates for admission to the Quebec notarial profession must be Canadian citizens and hold a diploma of college studies from a Quebec General and Vocational College (CEGEP), or a B.A. of a university or college whose degree is recognized jointly by Laval, Montreal, McGill, Sherbrooke and Ottawa Universities for admission to their law courses, and also by the Board.

In view of periodic amendments to the Notarial and Bar Acts and other legislation, and additional requirements not mentioned above, candidates are warned that they should not rely on the brief summary contained in this *Announcement* but should consult the following representatives of the Bar and notarial profession before admission to the Faculty. Information regarding admission to the Bar may be obtained by applying to Me Bernard Clermont, 70 Notre-Dame Street West, Montreal 126. Information regarding admission to the Notarial profession may be obtained by applying to Me Bernard Coupal, 630 Dorchester Boulevard West, Montreal 101.

5.2 ONTARIO

Admission to the Bar in Ontario is under the control of the Law Society of Upper Canada. That Society requires that the applicant for admission be a graduate from an approved law school. The Law Faculty of McGill has been approved by the Society. Graduates with the degree of Bachelor of laws (LL.B.) are eligible to enter the Bar Admission Course conducted by the Law Society of Upper Canada and to become student members of the Society.

The Bar Admission Course consists of a period of twelve months service under Articles of Clerkship with a member of the practising profession in Ontario followed by a

further period of six months of full time attendance at lectures in Osgoode Hall. Upon successful completion of these courses the candidate may be called to the Bar provided he meets the other requirements of the Ontario Bar. The foregoing requirements are at present under review.

Candidates intending to seek admission to the Faculty should first seek detailed information on the above from the Law Society of Upper Canada, Kenneth Jarvis, Q.C., Secretary, Osgoode Hall, Toronto, Ontario.

In general it is expected that the governing bodies of the legal professions in most of the common law provinces will treat the LL.B. degree of McGill University in the same way as they treat an LL.B. degree from any of the Ontario common law schools. Students who have specific inquiries about any particular province should address them to the governing body of the profession in the province concerned.

Candidates for the Bachelor of Laws Degree (LL.B.) and seeking entrance to the Bar Admission program of any of the Common Law provinces must satisfy the regulations of the particular Common Law province to the Bar admission course or program to which entrance is sought. In particular, the attention of candidates is drawn to the pre-law requirements of the Bars of the various provinces. Moreover, all such regulations are subject to amendment.

6 GRADUATE STUDIES IN LAW

6.1 REGULATIONS

6.1.1 GENERAL REGULATIONS CONCERNING HIGHER DEGREES IN LAW

The higher degrees in law are the M.C.L. (Master of Civil Law), the LL.M. (Master of Laws) and the D.C.L. (Doctor of Civil Law), as offered by the Institute of Air and Space Law, and the Institute of Comparative Law.

6.1.2 GENERAL REQUIREMENTS FOR THE M.C.L. OR LL.M. DEGREE

A candidate for admission must hold the degree of B.C.L., with at least second class honours, from McGill University, or its equivalent, and satisfy the linguistic and other requirements of the Institute of his study. He must follow, throughout a session of resident full-time study, the courses prescribed for him by the Institute, including cognate courses in other departments of study. A candidate who satisfies the requirements of the year in residence must also under supervision prepare and submit an acceptable thesis and, if required by the Institute, undergo an oral examination designed to test his general knowledge of the field of his research studies.

In certain cases a transfer of candidacy from the M.C.L. or the LL.M. to candidacy for the D.C.L. may be permitted at the end of the year in residence. Such transfer is open only to a student who shows considerable promise and upon the recommendation of the Institute. A student so transferred will not be required to prepare a master's thesis but must spend at least one further year in residence at McGill.

6.1.3 GENERAL REQUIREMENTS FOR THE D.C.L. DEGREE

The program of each department of study consists of a minimum of three years' work from the first registration of the candidate of which at least two years must be spent in fulltime resident study at McGill. Only an applicant of proven legal scholarship of high merit will be admitted to candidacy for this degree and normally a candidate should be the holder of both a general degree and a law degree. In suitable cases the holder of the M.C.L. or LL.M. degree of McGill (or its equivalent) may be considered as having satisfied the first year of the Institute's doctoral program. An applicant must satisfy the linguistic and other requirements of the Institute of his study and, as a rule, an Institute will not permit a candidate who is not the holder of an appropriate master's degree, or its equivalent, to register directly for the D.C.L. but require him to register for the M.C.L. or LL.M. A candidate for the M.C.L. or LL.M. degree of McGill, who, upon the completion of his first year of resident study, shows considerable promise may, upon the recommendation of the Institute of his study, be permitted to proceed to the second year of the D.C.L. program without being required to submit a master's thesis.

At a stage in the program of his studies as determined by the Institute a candidate must pass an oral examination, the purpose of which is to test his general knowledge of the field of his research studies. Further, a candidate will be required to defend his thesis before a

jury appointed by the Faculty of Graduate Studies and Research and consisting of five adjudicants, including at least two who are not members of the Faculty of Law. To qualify for the degree the thesis submitted must be a significant contribution to legal scholarship, evidencing in concept and execution the individual work of the candidate, and in form suitable for publication.

Insofar as not varied by the above, the rules and regulations of the Faculty of Graduate Studies and Research apply in all matters appertaining to candidature for a degree.

6.2 INSTITUTE OF AIR AND SPACE LAW

Director – PROFESSOR IVAN A. VLASIC
Teaching Staff – See Section 1.2.1

6.2.1 DEGREES AND DIPLOMA

6.2.1.1 Programs for the Degree of Master of Laws

The Institute of Air and Space Law operates within the Faculty of Law. The Institute provides facilities for advanced study and fundamental research in Air and Space Law and related problems of International Law for highly qualified law graduates or others with appropriate qualifications. The Institute offers a Diploma in Air and Space Law, and the degrees of Master of Laws (LL.M.) and Doctor of Civil Law (D.C.L.).

6.2.1.2 Diploma in Air and Space Law

Applicants for admission must hold a law degree of high standing from an approved law school in any part of the world, or must have an equivalent professional standing. Working competence in the English language is required but examinations and other written work may be presented in French. All candidates must present evidence of the subjects covered in their prior law studies and of their scholastic or professional standing together with two suitable references.

A candidate who satisfies the residence requirements of one session and who passes the prescribed examinations will be awarded the Diploma in Air and Space Law.

6.2.1.3 Courses and Registration

The prescribed courses are:

387-611D PUBLIC INTERNATIONAL AIR LAW
387-612D PRIVATE INTERNATIONAL AIR LAW
387-613D GOVERNMENT REGULATION OF AIR TRANSPORT
387-614D SPACE LAW
387-615D ECONOMICS OF AIR TRANSPORT
387-616D INTRODUCTION TO CIVIL & COMMON LAW
387-617D TERM PAPER

The Director may require additional courses of particular candidates.

6.2.1.4 Degree of Master of Laws

A working competence in the English language is required but examinations and written work including theses may be presented in either French or English. All candidates must present evidence of the subjects covered in their prior law studies and of their scholastic or professional standing together with two suitable references.

The prescribed courses are as those set out above for the Diploma, but in addition the candidate must present an acceptable thesis on a subject approved by the Director. No candidate may receive the Diploma and the Master's degree for the same course of studies. A candidate who has already received the Diploma in Air and Space Law may be accepted as a candidate for the Master's Degree, but he will be required to spend one additional academic session in residence, and he may also be required to undertake additional course work beyond the course work already performed for the Diploma, in addition to the thesis. All candidates must be in residence for one academic session but are advised to remain in residence for at least one calendar year.

6.2.1.5 Degree of Doctor of Civil Law

The degree of Doctor of Civil Law is predominantly a research degree, and it will be awarded on the basis of a thesis that represents an original contribution to legal knowledge. A working competence in the English language is required, but the thesis may be presented in either French or English. All candidates must present evidence of the subjects covered in their prior

law studies and of their scholastic and professional standing together with two suitable references.

The Director may, at his discretion, require any candidate for the D.C.L. degree to attend one or more courses or seminars in the field of the candidate's thesis or in related subjects and satisfactorily to complete any examination requirements in those subjects. The degree of D.C.L. will be awarded only after completion of three years from the first registration of the candidate for the D.C.L. degree; though in the case of a candidate who has already obtained a graduate degree within the Institute, this period may, with the special permission of the Institute, be reduced to two years. Of these three years, at least two must be spent in residence at the Institute.

6.3 INSTITUTE OF COMPARATIVE LAW

Director — PROFESSOR H.R. HAHLO
Teaching Staff — See Section 1.2.2

6.3.1 PURPOSES OF THE INSTITUTE

The Institute of Comparative Law operates within the Faculty of Law. As a centre for comparative legal studies the Institute provides facilities for graduate work, advanced studies and field research in areas of Public and Private law. The Institute offers the degrees of Master of Laws (LL.M.), Master of Civil Law (M.C.L.) and of Doctor of Civil Law (D.C.L.).

6.3.2 REQUIREMENTS FOR DEGREE OF MASTER OF LAWS/MASTER OF CIVIL LAW

An applicant must hold the degree of B.C.L. or LL.B. with at least second class honours from McGill University or its equivalent.

An adequate working knowledge of the English and French languages is required from all applicants. Applicants who wish to pursue studies which in the opinion of the Director require knowledge of a language other than English or French must possess adequate working knowledge of that language.

All applicants must present satisfactory evidence of the subjects covered in their prior law studies, of their scholastic or professional standing, and of their linguistic proficiency in English and French, together with not less than two suitable references.

6.3.2.1 Courses and Registration

Candidates for the master's degree must spend at least one academic year in residence. There is no uniform program of studies which every candidate must take. Each candidate follows a program of studies determined by the Director, which in as far as possible is fashioned to meet his particular needs as determined by his prior legal experience and his aspirations.

As a rule a candidate must take in each of the two terms of the academic year a minimum of three courses which must include the course Introduction to Comparative Law provided by the Institute. In addition, a candidate with a civil law background will normally be required to select at least one undergraduate course from the common law program, while a candidate with a common law background will normally be required to select at least one undergraduate course from the civil law program. The remaining courses may be selected, subject to the Director's approval, from the seminars provided by the Institute and any of the courses forming part of the curriculum for the B.C.L. or LL.B.

Each candidate will be required to submit a thesis on a subject approved by the Director either by the end of July following the academic year in which he first registered or at such date thereafter as might be determined by the Director. In the latter case, the thesis, with the leave of the Director, may be prepared *in absentia.*

In order to be allowed to submit a thesis, a candidate must have obtained a mark of at least 65% in each of the courses or seminars for which he registered.

Examinations, term papers and theses may be written either in English or French.

6.3.3 REQUIREMENTS FOR DEGREE OF DOCTOR OF CIVIL LAW

The degree of Doctor of Civil Law is predominantly a research degree, and will be awarded on the basis of a thesis that represents an original contribution to the development of legal science. An adequate working knowledge of the English and French languages is required from all candidates. The thesis may be presented in either English or French. All prospective candidates must present evidence of the subjects covered in their prior law studies and of their scholastic and professional standing together with two suitable references. The degree will be awarded, at

the earliest, after the completion of three years from the first registration of the candidate: of these three years, at least two must be spend in residence at the Institute.

As a rule a candidate who does not already hold a master's degree will be required to complete the master's degree in the Institute before being accepted for the doctoral program. A candidate who has obtained the master's degree from another university will, as a rule, be required to complete the courses prescribed for the first year of the master's degree. If his performance is not of sufficiently high standard to justify admission to the doctoral program, he will not be permitted to proceed any further, but may be permitted to submit a master's thesis to qualify for the master's degree. If his performance is of sufficiently high standard, on the other hand, he may be permitted to proceed to the second year of the Doctoral program without being required to submit a master's thesis, and will not, in this case, be required to spend more than one more year in residence.

7 LIBRARY

The Law Library of the University, located in new Chancellor Day Hall, contains at present a valuable collection of over 80,000 volumes. It includes virtually all Canadian works, and the principal law reports of the United Kingdom and France, as well as a selection of reports from the United States, Commonwealth countries such as Australia and New Zealand and Civil Law jurisdictions such as Belgium and Germany.

The Wainwright Collection, comprising the personal library of the French legal historian Olivier Martin, is a particularly fine collection of early editions relating to French Law.

The Law Library is intended primarily for the use of professors of this Faculty and students registered for courses given in it or in the Institute of Air and Space Law or in the Institute of Comparative Law. Permission for use by other persons desiring to avail themselves of this Library's facilities will depend on the space available and the demands being placed on the Library's resources at the time. Attention is drawn to the necessity for persons not registered at McGill University to register and pay a fee to the University where extensive use of the library is authorized.

The great value of the Law Library to students and to the profession is self-evident. For these reasons the Faculty expects the full cooperation of all in maintaining the integrity of the Library and in preventing damage to books or their unlawful removal.

Law students also have access to all other collections within the University Library system, in particular the McLennan Library, which is the general University Library.

8 McGILL JOURNAL

The McGill Law Journal is a professional journal published by students of the Faculty of Law of McGill University. Its purpose is to promote the study of the law in Canada and to help in the understanding of the Civil Law and Common Law systems which exist side by side in this country.

9 MOOT COURT BOARD

The Moot Court Board is composed of post First year students of the Faculty of Law and supervises the Faculty's moot court program. Ability and capacity determine the selection of members.

10 SCHOLARSHIPS, PRIZES AND LOAN FUNDS

10.1 SCHOLARSHIPS AND BURSARIES

EDWIN BOTSFORD BUSTEED SCHOLARSHIP. – Was founded by the will of the late Mrs. Busteed in memory of her husband, Edwin Botsford Busteed, K.C., B.A., B.C.L., and will be awarded to an applicant, chosen by the Faculty, who desires to carry out graduate research on some subject connected with the law of Quebec and approved by the Faculty. The value of the scholarship is approximately $1200 and can be used to supplement funds for graduate studies already received from other sources. Candidates shall make application for this Scholarship to the Associate Dean for Student Affairs.

HAROLD G. FOX EDUCATION FUND BURSARY – Value $250. Established by donations from the Harold G. Fox Education Fund. To be awarded by the Student Aid Office to needy law students in good standing.

CHIEF JUSTICE R.A.E. GREENSHIELDS MEMORIAL SCHOLARSHIPS. – Two scholarships covering tuition fees bequeathed by the late Mrs. R.A.E. Greenshields in memory of her husband, the late Chief Justice Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law. Awarded to students entering the Faculty of Law and renewable in each of the two upper years leading to the Bachelor of Civil Law degree, if satisfactory conduct, and at least a high Second Class standing are maintained, or for other reasons at the discretion of the Faculty. Candidates must satisfy the regular requirements for admission to the Faculty, must have a standing of at least high Second Class, and preferably First Class at the University or Institution which they previously attended, and must furnish evidence of the need for financial assistance to enable them to study law. Fluency in both English and French is not essential, but preference is normally given to applicants with a good working knowledge of both languages. Apply to the Faculty.

H.E. HERSCHORN FUND. – The Student Aid Office may award a bursary from the interest of this fund to a deserving student in the Third or any subsequent year of his program leading to the B.Sc., B.A., M.D., C.M., B.C.L., or LL.B. degree.

EUGENE LAFLEUR SCHOLARSHIP. – This scholarship in the amount of $1,000, presented by the law firm of Messrs. Laing, Weldon, Courtois, Clarkson, Parsons, Gonthier & Tétrault in memory of its founder, will be awarded annually to a student entering the year in which he expects to obtain his B.C.L. degree (whether the student is pursuing a purely B.C.L. program or is taking the National Program). Selection will be made by the Faculty on the principal ground of academic excellence.

MACDONALD TRAVELLING SCHOLARSHIP. – Founded by the will of the late Sir William Macdonald "for the purpose of enabling English-speaking Law students to take a course of studies in France," the testator "deeming it of great importance that the English-speaking members of the legal profession should be proficient in the French language." The value of the scholarship is approximately $4,000. The scholar selected is required to pursue a year's study in the Law Faculty of a Frency University approved, in each case, by the Faculty. The award is made at the discretion of the Faculty to a student of the graduating class proceeding to the Bar, who has obtained first or second class honours in the final examination, and who would be unable without such financial help to spend a year in France. The Faculty interprets the will of the late Sir William Macdonald as intending that the Scholarship be awarded only to students preparing for practice as advocates in the Province of Quebec. Under the present regulations the Scholarship must be used in the year in which it is awarded. Candidates shall make application for this Scholarship to the Associate Dean for Student Affairs.

McGILL LAW GRADUATES ASSOCIATION SCHOLARSHIPS. – The McGill Law Graduates Association offers two scholarships, one covering tuition fees for a student entering Second year and the other for a student entering Third year. Selection is made by the Faculty of Law

in conjunction with a representative of the McGill Law Graduates Association, with broad discretion on the basis of need as well as academic and other merit. **Apply to the Faculty**

CHARLES ALBERT NUTTING BURSARY. – Value $250; resulting from a donation made in 1930 by Miss Adelaide Nutting, M.A., R.N., in memory of her brother, Charles Albert Nutting, K.C., B.C.L. 1872. Awarded by the Student Aid Office to needy law students in good standing.

THOMAS ALEXANDER ROWAT SCHOLARSHIP. – Value $250, founded by Mr. Donald McKenzie Rowat, N.P., in memory of his brother, Lieutenant Thomas Alexander Rowat, B.C.L., who was killed in action at Lens, France, on June 28, 1917. Awarded for proficiency in French and in the old French law, on conditions set by the Faculty.

THOMAS SHEARER STEWART TRAVELLING FELLOWSHIP. – Established in 1967 by the family of the late Thomas Shearer Stewart, Q.C., a graduate of the Faculty of Law class of 1908. The Fellowship, valued at not less than $2,700, is to be awarded annually or as often as the University considers advisable, to a recent graduate of the Faculty of Law designated by the Dean of the Faculty, preference being given to a graduate who is a Canadian Citizen intending to reside in Canada upon completion of his studies. The Fellowship is to be used for a graduate to follow a program of studies in Law at a University approved by the Dean of the Faculty, other than at a University in Quebec. Candidates shall make application for this Fellowship to the Associate Dean for Student Affairs.

MR. & MRS. SAUL TARNOFSKY AWARD. – $100. donated by Mr. & Mrs. Saul Tarnofsky, for a student in financial need entering first year.

WAINWRIGHT SCHOLARSHIPS. – Established by a bequest from the estate of the late Arnold Wainwright, Q.C., for many years a lecturer in the Faculty of Law and a distinguished lawyer of the Montreal Bar. Two entrance scholarships of $1,500 each for 3 years and $2,000 each for the fourth year. Awarded to undergraduates of promise having distinguished scholastic records registered for the B.C.L. or LL.B. degree and proceeding to the National Program. Tenable for four years if candidates maintain distinguished academic standing. In addition, two scholarships of $2,000 each are available for students who have obtained their first law degree and are entering the last year of the National Program. Wainwright Scholars who show no financial need will be awarded the nominal sum of $100, the balance of moneys to be allocated as Wainwright Bursaries to meritorious students with need. **Apply to the Faculty**

10.2 SCHOLARSHIPS ANNOUNCEMENT

A complete list of scholarships and bursaries in the University generally and the regulations governing the various loan funds are given in the *Announcement of Scholarships, Bursaries, Prizes, Medals and Loan Funds* which may be obtained from the Registrar's Office.

10.3 PRIZES

ALEXANDER SCHOLARSHIP. – $100, bequeathed in 1950 by the late Maurice Alexander, C.M.G., K.C., of London, England, as a token of esteem for the late Sir Charles Peers Davidson, former Professor of Criminal Law at McGill. Awarded by the Faculty.

HYMAN BAKER Q.C. PRIZE. – $100 established by the family of Hyman Baker, Q.C. to commemorate his seventieth birthday. Awarded to the student obtaining the highest standing in Bankruptcy.

I. BALLON MEMORIAL MEDAL. – Established in 1955 by Mrs. I. Ballon in memory of her husband, the late Isidore Ballon, B.A. 1907, B.C.L. 1908, and awarded to the most outstanding student on the Board of Editors of the *McGill Law Journal.*

CANADA PERMANENT PRIZE. – Established in 1966, is an annual prize valued at $100, awarded by Canada Permanent to the student who receives the highest standing in the group of courses comprising Wills, Successions, Marriage Covenants and Gifts.

CARSWELL PRIZE. – A book prize of $100 established in 1948 by Carswell Company Limited awarded to a student in the graduating class. There is a further book prize of $50

established in 1973 by the Company awarded to a lower year student. Both prizes are awarded at the discretion of the Faculty.

JOSEPH COHEN, Q.C. AWARD. – This award of $315 is made to a deserving student selected by the Faculty.

JOHN W. COOK, K.C., PRIZE. – $575 awarded annually to an outstanding member of the graduating class in Law as determined by the Dean and Faculty on the basis of high academic standing throughout the course, participation in Faculty activities and possible postgraduate intentions.

JOHN E. CRANKSHAW PRIZE. – Established by friends of the late John E. Crankshaw, Q.C., formerly lecturer in Criminal Law at McGill, the prize consists of $300 to be applied to Bar fees, advocate's gown and any other needs. Awarded to the student who has the highest standing in Criminal Law subjects at McGill and has passed his final examination for admission to the Bar of the Province of Quebec.

MAX CRESTOHL PRIZE. – $65, established in 1959 under the Will of the late Max Nathan Zion Crestohl, Q.C. Awarded to the student who, in the opinion of the Faculty, has submitted the best written contribution to the *McGill Law Journal.*

JOSEPH DAINOW PRIZE. – $100, established by Professor Dainow, for writing in the area of Civil Law.

HAROLD G. FOX EDUCATION FUND PRIZE. – $100, offered each year commencing 1970-71 for a period of five years, awarded to the student who obtains the highest standing in the course on Intellectual Property.

MAURICE GOLDENBERG MEMORIAL SCHOLARSHIP – Value $200, in Government, Constitutional Law, or Public Administration, established by Sen. H. Carl Goldenberg in memory of his father, the late Maurice Goldenberg. Awarded by the University Scholarships Committee to the best candidate amongst those nominated by the Faculties of Arts, Science and Law.

CHIEF JUSTICE GREENSHIELDS PRIZE IN CRIMINAL LAW. – Value $95, endowed by the late Mrs. Greenshields in 1943 in memory of her husband, the late Chief Justice Robert Alfred Ernest Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law, and awarded to the member of the graduating class in Law having the highest standing in Criminal Law throughout the law program.

H.E. HERSCHORN PRIZE. – $150, established by the late Mr. H.E. Herschorn, N.P., B.A. 1911, B.C.L. 1914, to the highest ranking graduating student who intends to enter the Notarial profession.

"I.M.E." PRIZE IN COMMERCIAL LAW. – $200, to enable a student to purchase law books, established by Mr. George S. McFadden, Q.C., awarded to the member of the graduating class having the highest standing in Commercial Law throughout the program.

LYON WILLIAM JACOBS, Q.C., AWARD. – Value $100 a year. Originally established in 1957 by donations totalling $500, and increased in 1962 to $2,000 by Mr. and Mrs. Alvin B. Jacobs, Mrs. Sybil Jacobs Phillips, Dr. and Mrs. Morris Lieff, and Mr. and Mrs. Newman Biller, in honour of the late Mr. Lyon W. Jacobs, Q.C. Awarded to a Second or Third year Law student who, in the opinion of the Faculty, shows the most progress in his studies and is also in financial need.

JUNIOR BAR ASSOCIATION PRIZE. – A prize of $50 for the student who obtains the highest standing in Civil Procedure in the First year.

DEAN IRA A. MacKAY PRIZE. – $100, established by Mr. R. deWolfe MacKay, Q.C., in memory of his father, formerly Dean of the Faculty of Arts and Science of McGill University, and awarded at the discretion of the Faculty to the student obtaining the highest standing in the field of Torts throughout the program.

CHESTER MACNAGHTEN PRIZES.

ADOLPHE MAILHIOT MEMORIAL PRIZE. – A prize of $25 established by Mr. and Mrs. J.N. Mailhiot, of Victoriaville, P.Q., in 1927, to be used for the purchase of law books.

THE PHILIP MEYEROVITCH, Q.C., PRIZE. – $100, established in 1972 by his wife and by

his children, Perry Meyer and Sorel Young to commemorate his fifty years of practice before the Bar of the Province of Quebec. Awarded to the graduating student obtaining the highest standing in Evidence.

MONTREAL BAR ASSOCIATION PRIZES. – A prize of $100 for the student who obtains the highest standing in Civil Law throughout the law program and $100 for the student who obtains the highest standing in Civil Procedure throughout the law program.

ALEXANDER MORRIS EXHIBITION. – Value $120, founded in memory of the late Hon. Alexander Morris, M.A., D.C.L., of Toronto, and awarded to the student who obtains the highest standing in the Second year.

LAZARUS PHILLIPS PRIZE. – $200, established by the wife and family of Sen. Lazarus Phillips to commemorate his seventieth birthday. Awarded to the student obtaining the highest marks in the combined examinations in Company Law and Taxation.

QUEBEC BAR PRIZE. – $100, awarded to the winning team in this Faculty's Moot Court competition.

BENJAMIN ROBINSON MEMORIAL PRIZE. – A prize of $150 established by relatives and friends of the late Honourable Mr. Justice Benjamin Robinson in his memory, to be awarded to the student who obtains the highest standing in the final year of the National Program leading to the degree of Bachelor of Laws (LL.B.).

THE LORD READING SOCIETY OF MONTREAL PRIZE. – $150, established in 1952, awarded to the student who obtains the highest standing in the First year.

LOUIS H. ROHRLICK MEMORIAL PRIZE. – A prize of $100 established by associates of the late Louis H. Rohrlick, Q.C., to be awarded to the member of the graduating class having the highest standing in Public International law throughout the program.

ELIZABETH TORRANCE GOLD MEDAL. – Founded in 1864 by Professor John Torrance in memory of his wife, and awarded to the student who obtains, with the highest standing throughout the B.C.L. program, his B.C.L. degree as his first Law degree at a Spring convocation.

GERALD S. TRITT, Q.C., PRIZE. – $100, established in 1961 by the family and friends of Mr. and Mrs. Tritt and awarded to the student with the highest standing in the Special Contracts course.

WAINWRIGHT ESSAY PRIZE. – A prize of $500 will be awarded for the best written contribution by an undergraduate law student, whether the contribution be an essay or other paper and whether written as an elective or as part of a course requirement, or voluntarily. It will only be awarded if a high standard is achieved.

WILSON AND LAFLEUR (LIMITEE) AWARD. – This award of $100 is made every alternative year to a deserving First year student selected by the Faculty.

No scholarships or prizes will be awarded if, in the opinion of the Faculty, there is no candidate of sufficient merit.

10.4 LOAN FUNDS

The *A. Fleming Loan Fund* was established in 1954 by Mr. A. Fleming to aid students in the Faculty of Law. Application should be made to the Student Aid Office.

The *Louis De Zwirek, Q.C., Loan Fund* was established in 1969 by his widow in honour of her late husband from the Estate to aid students in the Faculty of Law. Application should be made to the Student Aid Office.

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McGill University

FACULTY OF MANAGEMENT

1973-1974

Samuel Bronfman Building
1001 Sherbrooke St. West*
Montreal 112, Que., Canada
Telephone (514) 392-5931

Bachelor of Commerce

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Bachelor of Commerce

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A.(U.B.C.), Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

EIGIL PEDERSEN, B.A.(SGWU), M.A.(McGill), D.Ed.(Harvard) — Vice-Principal (Academic)

STANLEY B. FROST, B.D., M.Th.(Lond.), Dr.Phil(Marburg), D.D.(Vic.,Tor.), D. Litt.(Mem.)
Vice-Principal (Administration and Professional Faculties)

ALLAN C. McCOLL, D.F.C., B.Com., C.A. — Director of Finance

HOWARD I. ROSS, O.B.E., C.A., M.A.(Oxon.), LL.D.(Qu., SGWU), D.Sc.Com.(Sher.), B.A.
Dean, Faculty of Management

S. J. SHAPIRO, A.B.(Harv.), M.B.A., Ph.D.(Penn.) — Associate Dean

JOHN H. HOLTON, B.Com. (Tor.) — Secretary of the Board of Governors

COLIN M. McDOUGALL, D.S.O., B.A. — Registrar

ALBERT F. BANVILLE — Administrative Assistant to the Dean

JEAN E. DEPPISCH — Undergraduate Program Adviser

1.2 MEMBERS OF FACULTY

H. I. ROSS, O.B.E., C.A., M.A.(Oxon), LL.D. (Qu., SGWU), D.Sc.Com.(Sher.), B.A. — Dean

L. R. AMEY, B.Ec. (Adelaide), B.A., Ph.D.(Nottingham) — Professor of Accounting

D. E. ARMSTRONG, B.A., B.Com.(Alberta), Ph.D. — Professor of Economics

F. BAIRSTOW, B.Sc. (Wis.) — Assistant Professor of Industrial Relations

J. BATES, B.Sc.(London) B.Com. (SGWU). — Part–time Lecturer in Information Systems

A. BOECK, B.Com.(Toronto), PH.D. (Wharton) — Part–time Lecturer in Finance

P. C. BRIANT, B.Com., C.A., M.B.A., Ph.D.(Michigan) — Professor of Economics

E. BURNETT, Dip.Ed.(Aberdeen), B.A.(SGWU), M.Sc. — Lecturer in Behavioural Science

G. S. CAVADIAS, B.Sc.(Athens) M.Sc. — Professor of Statistics

J. A. DUFF, M.A.(Cambridge), C.A. — Associate Professor of Accounting

M. C. FINDLAY, B.A., M.A., Ph.D. (Texas) — Associate Professor of Finance

M. E. GOLDBERG, B.A., M.A. (Columbia), Ph.D.(Illinois)
Assistant Professor of Consumer Behaviour

S. GOLDENBERG, B.A., M.A. (McGill) — Assistant Professor of Industrial Relations

L. A. GORDON, B.S., M.B.A.(S.U.N.Y. at Albany), Ph.D.(Rensselaer Polytechnic Institute)
Assistant Professor of Accounting

H. R. HOWSON, B.Com.(Toronto), M.Com., C.A. Assistant Professor of Information Systems

M. JUDAH, B.A.(Manitoba), B.L.S., M.L.S. — Librarian

R. N. KANUNGO, M.A.(Patna, India), Ph.D. Associate Professor of Organizational Behaviour

P. N. KHANDWALLA, B. Com.(Bombay) M.B.A.(Wharton), M.S.I.A., Ph.D. (Carnegie–Mellon), C.A.(India) Assistant Professor of Organizational Behaviour

I. KRUPKA, B.A. (Queen's) Visiting Professor of Management, The Public Sector

R. G. LAYBOURN, M.A. (Edinburgh), C.A. Associate Professor of Accounting

M. LANE, B.Sc., M.B.A. (Boston) Part–Time Lecturer in Marketing

R. J. LOULOU, M. Sc., Ph.D. (Berkeley) Assistant Professor of Operations Research

A. R. MARSHALL, B. Com.(Dal.), M.A., C.A. Associate Professor of Accounting

H. MINTZBERG, B. Eng., B.A. (SGWU), S.M., Ph.D.(M.I.T.) Associate Professor of Management Policy

R. N. MORRISON, B. Eng., B.A., M.A. (Oxford) Professor of Economics

W. H. PUGSLEY, B. Com., M.B.A. (Harvard), Ph.D. Professor of Management

D. N. S. ROBERTSON, B.A.(Queen's) B.Paed.(Toronto) Assistant Professor of Management

P. J. SANDIFORD, B.A., M.A. Ph.D. (Toronto) Professor of Operations Research

S. J. SHAPIRO, A.B.(Harvard), M.B.A., Ph.D.(Penn.) Associate Professor of Marketing

A. D. TEITLEBAUM, B.Sc., M.Sc., Ph.D. Associate Professor of Statistics and Operations Research

H. A. THOMSON, B.A., M.A., Ph.D. (Case Western Reserve) Associate Professor of Organizational Behaviour

G. A. WHITMORE, B.Sc.(Manitoba), M.S. Ph.D.(Minnesota) Associate Professor of Finance and Statistics

E. E. WILLIAMS, B.Sc.(Wharton) Ph.D.(Texas) Associate Professor of Finance

H. D. WOODS, B.A.(U.N.B.), M.A.(McGill), LL.D.(U.N.B.) Bronfman Professor of Industrial Relations

R. W. WRIGHT, B.A., M.B.A.(Dartmouth College), D.B.A.(Indiana) Assistant Professor of International Business

2 PROGRAM FOR THE BACHELOR OF COMMERCE DEGREE

GENERAL INFORMATION

2.1 AIMS OF THE PROGRAM

Management means getting things accomplished as effectively as possible. The ideal manager is a well-rounded man, with strong character, good judgment, breadth of vision and thorough competence in the management skills – behavioural and quantitative – which are being developed in this age of rapid technological change.

When everything is changing at such a fantastic pace, it is no longer possible to train good managers by simply passing on to them wisdom developed in a past age. Experience can still be a great teacher, but only if intelligently interpreted and applied. Our concepts must not be static, we must develop managers who can meet new challenges as they arise.

The different qualities required in a competent manager are teachable in varying degrees. Our aim is to give students an opportunity to master new management techniques, and also to broaden their outlook by optional courses in a wide variety of disciplines. We believe there are certain management skills which constitute "core" subjects which every manager should have – but beyond these, we encourage students to follow lines of interest through which they will emerge broadly educated. A good manager must be able to understand and to work with both the generalists and specialists that are required in our complex society.

2.2 ADMISSION

a) The student will be admitted to the program upon satisfactorily completing the CEGEP or College Equivalent program (for Quebec students) or their equivalent (for non-Quebec students). To provide the entering student with as great a degree of flexibility in his pre–university program as possible, the specific course requirements for entry to the Faculty have been kept to two one–term courses in differential and integral calculus, in addition to the English and French courses required in every CEGEP program. Students who select accounting as their Management Elective Group (see Section 3.1.2) *and* who intend to qualify as C.A.'s after graduating, are urged in addition to include two one–term courses in micro and macro economics in their CEGEP program.

b) If a student feels that he merits admission with advanced standing on the basis of his academic background, he may apply for such advanced standing in his initial application for admission to the Faculty.

c) Students from outside the Province of Quebec who have not quite completed the equivalent of CEGEP graduation may under certain circumstances be admitted to the program; they will be required to take correspondingly more credits for their degree than those students admitted under the conditions of a) above.

d) Students wishing to enter the Bachelor of Commerce program in September must apply in writing, before March 1, to:

Admission Office
F. Cyril James Building
McGill University

Students presently enrolled in another Faculty of this University wishing to transfer to the Bachelor of Commerce program in September must apply in writing not later than July 1 to:

The Secretary of Admissions
Bachelor of Commerce Program
Faculty of Management
McGill University

e) The usual time for beginning the Bachelor of Commerce program is in September; nevertheless it is possible for a student to commence his program in either January or at the mid-May Summer Session. Further details about non-September admissions, course sequences, etc., can be obtained from the Undergraduate Program Adviser.

f) Each accepted candidate will recieve an acceptance form which must be presented at Registration. The Faculty is not bound to accept all candidates who have satisfied minimum admission requirements.

g) The Faculty endeavours to enable a wide range of students, from many different countries, to enrol in the Bachelor of Commerce program; nevertheless, a reasonably high competence in reading English and in writing either English or French is expected from all students. Although lectures, texts, and reference material will, in general, be in English, students whose native tongue is French will be permitted to write their examinations and term papers in that language.

2.3 ACADEMIC REQUIREMENTS FOR GRADUATION

a) A student is graduated upon satisfactory completion of 90 credits, subject to the curriculum requirements (see Section 3.1).

b) All students are expected to conform to the curriculum set out below. A student wishing to depart from that program must obtain written permission from the Dean.

2.4 RESIDENCE REQUIREMENTS AND STATUTE OF LIMITATIONS

a) A student who has transferred with advanced standing to the Faculty of Management from another college or university, or from another Faculty within this University, is required to complete a minimum of 60 credits (see Section 2.6) while registered in the Bachelor of Commerce program, including such required courses as are deemed necessary, to become eligible for the degree of Bachelor of Commerce.

b) Completion of the degree requirements normally will require three years of study. A maximum of four years is permitted, however, for completion of the requirements for the degree. In exceptional circumstances, this maximum requirement may be extended by the Dean.

2.5 REGISTRATION

a) All students must register during the normal registration period as indicated in the Calendar of Dates of the University.

b) Students who fail to register during the normal registration period may do so later on the date designated by the University for late registration upon payment of a late registration fee.

c) Students who wish to add or drop courses after their registration has been completed may do so during a Change of Course period near the beginning of each term.

d) Each student is responsible for the completion of all courses for which he has registered. A student wishing to drop a course must do so in writing during the Change of Course period. Failure to complete course requirements will automatically result in a grade of F on the student's permanent record.

2.6 CREDITS

a) In general, a course lasting one term (about 3 months) with three hours of lectures per week (and laboratory periods and conferences, where appropriate) will carry a weight of three credits. Similarly, a three-hours-a-week course lasting the full academic year (about 6 months) will carry a weight of six credits. Most of the courses in the program are three-credit courses.

b) Students wishing to make up deficiencies in their background, or to accelerate their progress to the degree, may apply to the Dean to take summer courses, either at this University or at some other institution. Credit will be granted for such work only if the course(s) intelligently fits into the student's overall program, and if privilege of doing such work for credit has previously been approved in writing by the Associate Dean. Only grades considered the equivalent of C or better will be accepted in work done at another institution.

2.7 CLASSIFICATION OF STUDENTS

a) Students who have completed a College Equivalent or CEGEP program in the Province of Quebec will take a total of 90 credits in the university program.

b) Students from outside the Province of Quebec who have not completed the equivalent of CEGEP graduation may be admitted to the program, but will require more than 90 credits for their degree.

c) Sophomores are students who have accumulated less than 30 credits.

d) Juniors are students who have accumulated 30 credits or more but less than 60.

e) Seniors are students who have completed 60 credits or more.

2.8 COURSE LOADS

a) A full-time student in satisfactory standing will normally have a course load of 13 to 17 credits per term.

b) Sophomore students may be authorized by the Dean to take up to 18 credits per term if their record upon entering the program warrants it.

c) Full–time students whose grade point average (see Section 2.10) the preceding year was 3.0 or better may take 18 credits per term.

d) Full–time students on probationary standing (see Section 2.10) will have a course load of 10 to 12 credits per term, and may add to this a repeated course in which a grade of D or F was obtained at the first attempt.

e) Only full–time students in satisfactory standing will be eligible to register for Honours programs, or to compete for prizes, scholarships, or bursaries.

2.9 EXAMINATIONS

a) Students may write examinations in English or French.

b) Final examinations in all courses are held during the four–week period immediately following the end of lectures. In some courses, there is no final examination; standing in these courses is determined by the instructor on the basis of term work or class tests.

c) No student will be permitted to write an examination in any course unless he has fulfilled the requirements of the course to the satisfaction of the instructor.

d) A student who has not received a satisfactory grade in a course may apply to write a supplemental examination in that course. If this permission is granted, he must write this supplemental examination in the August immediately following. Written application to write a supplemental examination must be received by the Dean's Office before July 15. A fee of ten dollars ($10.00) for each supplemental paper is payable to McGill University.

e) A student who, because of illness or other reasons verified and accepted by the Dean's Office, has been unable to write one or more sessional examinations, may write supplemental examinations in their stead for full credit. The usual $10.00 fee for sitting a supplemental examination will be waived in this case. The Dean's Office must be informed within one week of the examination of the reasons for the absence.

f) Instructors are not permitted to grant any special treatment, regarding examinations, to any student. If a student wishes to contest his final grade in any course, he should apply in writing to the Dean.

2.10 LETTER GRADES AND THE GRADE POINT AVERAGE (GPA)

a) The following letter grade and rating will be used in assessing course results:

A (80% – 100%)	4	
B (65% – 79%)	3	Satisfactory
C (55% – 64%)	2	
D (45% – 54%)	1	Conditional Pass
F (less than 45%)	0	Failure

b) A grade of C or better is required for all courses which are prerequisite to further courses in the student's program.

c) A failure F carries no credit towards the degree

d) A grade of D is considered a pass only when it is in a terminal course;

e) A grade point average (a weighted average of the ratings obtained in all courses taken during the preceding twelve months, with the number of credits per course serving as the weight for the course) will be computed in May of each year. For example, a student who achieves a B in a 6 credit summer course, and obtains an A, B, B, D, D, F in 6, 3, 6, 6, 3, 6 credit courses respectively (provided the D's are in terminal elective courses) will have earned only 30 credits, and will have a grade point average of 2.2.

$$\frac{6(3)+6(4)+3(3)+6(3)+6(1)+3(1)+6(0)}{6+6+3+6+6+3+6}$$

$$= \frac{78}{36} = 2.2 \text{ GPA}$$

f) The student's standing will be determined on the basis of his annual grade point average as follows:

Satisfactory standing – GPA of 2.0 or better
Probationary standing – GPA of 1.2 to 1.99 in Sophomore year
– GPA of 1.5 to 1.99 in subsequent years
Unsatisfactory standing – GPA less than 1.2 in Sophomore year
– GPA less than 1.5 in subsequent years

g) The cumulative grade point average (CGPA) will include all courses taken by the student from the beginning of his Sophomore year.

h) A student on probationary standing registers for a maximum of 12 credits (see Section 2.8d)) per semester and must achieve by the end of that year either a CGPA of 2.0 or better, or a GPA for that year of 2.5 or better. Otherwise, the student's standing becomes unsatisfactory.

i) A student whose standing is unsatisfactory will be required to withdraw from the Faculty unless there are extenuating circumstances, in which case he may appeal to the Dean for permission to continue.

j) The student is required to have a CGPA of 2.0 or better upon graduation.

2.11 ACADEMIC RECORD

a) The student's transcript will include a listing of the courses taken and the letter grades obtained.

b) If a letter grade of D or F is subsequently improved upon both the initial and final grade will appear on the transcript.

2.12 SUMMER SESSION

Each summer, from mid–May to the end of June, most of the core courses are offered by the Faculty of Management for full credit. They are available to Management students, and to students from other Faculties and Universities with the necessary course prerequisites. In addition, the University offers a number of courses in various disciplines at different levels from early July to mid–August.

2.13 MANAGEMENT LIBRARY

The Management Library is located in the Bronfman Building and consists of over 35,000 books and periodicals and 13,000 pamphlets in the fields of economics, business, industrial relations, and management. These materials are readily available on the shelves and in files in the library reading room. The facilities of the McLennan Library are also available to students.

3 CURRICULA AND PROGRAMS

3.10 CURRICULUM – BACHELOR OF COMMERCE – GENERAL PROGRAM

The student who satisfies the minimum admission requirements (see Section 2.2), having graduated from a CEGEP or equivalent program which included a course in differential and integral calculus, will be required to earn 90 further course credits with satisfactory standing (see Section 2.10). All students are expected to conform to the curriculum set out below. A student wishing to depart from the program must obtain written permission from the Dean.

The FOUR components of the program are:

3.1.1 CORE

A total of 42 credits taken in common by all students in the program. This involves 33 credits offered by the Faculty, and 9 credits offered by other Departments. Courses normally taken in the Sophomore year are Accounting I, Behavioural Science I and II, Principles of Economics (Economics Department), Statistics I and II, Linear Algebra (Mathematics Department). Courses normally taken in the Junior year are – Behavioural Science III, Managerial Economics, Finance I, Marketing I, Management Information Systems I, Operations Research I (see Section 4.1 for course descriptions).

A student who successfully completes core course material before entering the three–year program will, if the courses are judged by the Faculty to be the equivalent of core courses, be granted exemption from the corresponding core course. A student may replace the exempted course with any elective or higher level course offered in the Faculty for which he has the necessary prerequisites. It must be emphasized, however, that while the exemption absolves the student from the need to repeat the course material, he must still complete a total of 90 credits in his three year university program.

3.1.2 MANAGEMENT ELECTIVE GROUP

Each student will elect a total of 18 credits chosen from one of the Management Elective Groups listed below. The elective courses from the Group, together with the breadth provided by the Core listed above, should enable the student to develop some depth in one particular area in Management (see Section 4.2).

Accounting
Business Law
Computers and Systems
Finance
Industrial Relations
International Business
Marketing
Organizational Behaviour and Personnel
Policy, Small Business and Entrepreneurship
Quantitative Methods

3.1.3 NON–MANAGEMENT ELECTIVES

The student in the general program will choose at least eighteen credits outside the Faculty of Management. The only restriction is that at least twelve of these credits must be beyond the introductory level. The subject areas usually chosen by management students include Economics, French, History, Geography, Mathematics, Political Science, Psychology, and Sociology. Indeed, subject to the above restriction, the student may register for *any* courses given by the Faculties of Arts, Science, Psychology, and Sociology. Indeed, subject to the above restriction, the student may register for any courses given by the Faculties of Arts, Science, and Law, for which he has the necessary prerequisites, in order to satisfy his non-Management elective requirements. The student should consult the calendars of the appropriate Faculties for details of the courses offered.

3.1.4 UNRESTRICTED ELECTIVES

A student will choose a total of 12 credits in his Junior and Senior years without restriction.

Depending on the extent of his interests, the student may wish to choose courses in 3.1.3, and 3.1.4, so that they complement those taken in 3.1.2. In this manner a student may achieve both depth and breadth in the chosen Group. On the other hand, the student may take fewer Management courses in order to gain a relatively liberal education.

In summary:	
Core in Faculty of Management	33
Core taken outside the Faculty	9
Management Elective Group	18
Non–Management Electives	18
Unrestricted Electives	12
Total Credits Required	90

	Core			*Management Elective Group*	*Non-Management Electives*	*Unrestricted Electives*
Sophomore	Accounting*	A,B.	(3)			
	Behavioural Science I	A.	(3)			
	Behavioural Science II	B.	(3)			
	Linear Algebra	A,B.	(3)		(6)	
	Principles of Economics	D.	(6)			
	Statistics I	A.	(3)			
	Statistics II	B.	(3)			
Junior	Behavioural Science III	A,B.	(3)			
	Finance I	A,B.	(3)			
	Managerial Economics	A,B.	(3)	(3)	(6)	(3)
	Marketing I	A,B.	(3)			
	Management Information Systems I	A,B.	(3)			
	Operation Research I	A,B.	(3)			
				(15)	(6)	(9)

*Separate courses for accounting specialists (280–212) and non–specialists (280–211).

A. indicates course offered in first term.
B. incidates course offered in second term.
A,B. indicates course offered in both terms.
D. indicates course extends over both terms.
The particular course sequence will be determined with an assigned Faculty member during the pre–registration period.

3.2 MAJOR AND HONOURS PROGRAMS

A student preferring a more intensive background in one subject area may elect a Major or an Honours program in that subject. Major programs are at present available in Economics, Economics and Political Science, Industrial Relations, Mathematics, and Psychology. A Major program exempts the student from the requirement of 3.1.2; he must complete all of the core courses, with the exception that he must substitute for certain core courses their equivalent in other departments – Mathematical Statistics (Mathematics Department) for Statistics I and II; Honours Economics students only may substitute Economic Statistics (Economics Department). Although the requirements for a Major vary from one discipline to another, they basically require a student to take 54 credits in that subject, 36 of which must be in courses actually given by the relevant department in the Faculties of Arts and Science; the remaining 18 credits are chosen in related areas through consultation with the Department concerned. The degree of "Bachelor of Commerce", Major in "_____" is then awarded upon recommendation of the Department concerned.

Because of the heavier demands of Major or Honours programs, a student desiring to pursue a program of this type must declare his intention by the beginning of his Junior year. The student is then assigned to an adviser from the appropriate department and a suitable program is worked out, incorporating this Faculty's core requirements and the requirements of the Major or Honours Department. The courses in the Major subject must be approved each year by the Majors adviser in the department concerned. Students wishing to take a Major program in a subject not listed above should consult the Dean to determine whether such a program is possible.

Majors in Economics will be permitted by the Economics Department to count Statistics I and II as 6 of the required 36 credits in Economics, leaving 30 additional credits to be taken in Economics. All Major and Honours students in Economics will be exempted from the core course, Managerial Economics.

In subjects where the extent of overlap between the 36 credits of the Major subject and the Management core is not great it will be necessary for the student to enter the Major program at the beginning of his Sophomore year. This would be the case, for example, for a Major in Mathematics, since Mathematical Statistics would have to be substituted for Statistics I and II in the Sophomore year.

An Honours program is available in Economics, as well as a Joint Honours program in Economics and Accounting. The difference between the Honours and Major programs in Economics is not one of quantity but rather of quality, the Honours program involving study in greater depth.

Students who register with the Economics Department for their Honours program at the beginning of their Sophomore year will take the introductory Honours course, Introduction to Economic Theory, in place of Principles of Economics. However, a student who decides at the beginning of his Junior year that he wishes to follow the Honours program may be permitted to do so by the Economics Department if he has achieved sufficiently high standing in the general course, Principles of Economics. In his Junior year, the Honours Economics student will take three Honours courses: History of Economic Thought, Macroeconomics, Economic Statistics. In his Senior year, he will choose three Honours Economics courses.

The Joint Honours program in Economics and Accounting will involve all the requirements of the Honours in Economics, with only two Honours Economics courses chosen in Senior year. In addition, the student will complete 18 credits in Accounting,

courses one to six listed in the requirements of the Accounting Group (see Section 4.2.1).

Students wishing to pursue a Major or Honours program, or desiring further information about such a program, should consult the Dean.

The requirements for satisfactory standing (see Section 2.10) apply to students in a Major program as well as to students in the general program. Students in an Honours program will be required to maintain a 3.0 average in their Honours courses.

3.3 DIPLOMA OF LICENTIATE IN ACCOUNTING

Legislation of the Province of Quebec provides:

> "A diploma of Licentiate in Accountancy of the Royal Institution for the Advancement of Learning (McGill University) granted in the way hereinafter indicated confers on its holder, notwithstanding any law to the contrary, the right to become a member of the Institute of Chartered Accountants of Quebec, without examination, after payment of the usual fees and contributions.
> Before the diploma is granted it must be established that the student is of the full age of twenty—one years, that he has successfully followed, for at least three years, the courses prescribed by the School of Commerce* of McGill University, that he has had, either before or after his examination, one year of service in the office of a public accountant who is a member of the Institute of Chartered Accountants of Quebec, if possible, otherwise in the accounting service of an industrial, commerical or financial establishment or of an appropriate government department, and that he has successfully passed the final examination before a jury composed of the director and three members of the teaching staff of the above—mentioned School of Commerce and three members of the said Institute." *(Act 10, George IV, Chapter 47, Section 18).*

**The School of Commerce in June 1968 was merged with the Graduate School of Business to form the Faculty of Management; thus 'School of Commerce' should be interpreted as Faculty of Management. The Act is in the process of being amended through the Quebec National Assembly.*

In addition to the above, the University requires that each student shall:

a) after graduation as a Bachelor of Commerce and before commencing his courses, register with the Secretary, Licentiate Jury (the Associate Director, Accountancy, McGill Centre for Continuing Education) as a Licentiate student;

b) complete a prescribed program of study;

c) apply for admission to the final examination on the form prescribed by the Licentiate Jury.

Graduates of this University who hold the degree of Bachelor of Commerce will be deemed to have met the course requirements for continuation as Licentiate students, if, in their program of study for this degree, they have successfully completed the undergraduate courses: Financial Accounting I, II and III, Management Accounting I, Accounting Theory, Systems and Auditing, Business Taxation.

In the application of the requirement of "one year of service", the alternative of "accounting service of an industrial, commercial or financial establishment or of an appropriate government department" will be acceptable only if it is established that no position is available in the office of a practising public accountant who is a member of the Institute of Chartered Accountants of Quebec, and such alternative service has been approved by the Jury.

The program of study for the Diploma of Licentiate in Accountancy, after graduation from this University with the degree of Bachelor of Commerce including the abovementioned undergraduate Accounting courses, will be completion of the requirements for the courses as given by the Centre for Continuing Education of this University.

Students who are studying for the Diploma of Licentiate in Accountancy or the

Diploma of the Institute of Chartered Accountants of Quebec and are not Canadian citizens, are required to have "a working knowledge of the French language" as determined by the Lieutenant–Governor in Council. Information on this and other requirements can be obtained from the Secretary, Licentiate Jury.

NOTE: Graduates of this University with the degree of Bachelor of Commerce who wish to qualify for membership in the Institute of Chartered Accountants of Quebec, but who have not fulfilled the requirements for the Diploma of Licentiate in Accountancy in their under–graduate studies as noted above, may qualify to write the final examinations of the Institute by successfully completing a prescribed series of courses through the McGill Centre for Continuing Education. They must also "have completed two years' service in the office approved by the council, such service to be in the office of a member of the Institute if possible, otherwise in such office and nature of work as may be prescribed by the by–laws, rules or regulations of the Institute." (See Section 8, 3 a) i)). In this case graduates do not continue as Licentiate students of McGill University but are required to register with the Institute of Chartered Accountants of Quebec. Students should consult the Associate Director, Accountany, McGill Centre for Continuing Education and the Executive Director of the Institute of Chartered Accountants of Quebec, 620 Lagauchetière Street West, Montreal.

3.4 B.COM.–M.B.A. PROGRESSION

Superior students completing the Bachelor of Commerce program, who have included in their program certain elective courses offered through the Faculty, will be considered for admission to the second year of a two–year program leading to the Master of Business Administration. This will enable highly qualified students, who have carefully planned their program, to complete their M.B.A. with four years of post–CEGEP University study. Further details can be obtained from the Undergraduate Program office at 392–5854.

3.5 SUMMARY OF PROGRAMS OFFERED THROUGH THE FACULTY OF MANAGEMENT

Bachelor of Commerce Degree – A three–year program of study designed to prepare the student for the B.Com. degree.

Evening Certificate and Diploma Courses – Courses offered jointly by the Faculty and the Centre for Continuing Education in accounting, business and management, and related subjects to enable qualified evening students to earn the certificate and/or diploma awarded by the Centre. Courses to assist evening students to meet the requirements of certain professional societies. (See *Calendar of the Centre for Continuing Education.*)

The Financial Research Institute – McGill students have access through the Financial Research Institute to one of the largest financial and economic data banks in the world. The Institute itself is a non–profit corporation which is jointly owned and operated by Canadian Companies and Universities. The purpose of the Institute is to foster knowledge and understanding of all quantitative aspects of financial and economic analysis.

McGill Management Institute – The Institute offers a series of courses, seminars, and other training activities for business executives.

Master of Business Administration Degree – A two–year program of full or part–time study leading to the Master in Business Administration degree, for qualified students holding an undergraduate degree.

4 UNDERGRADUATE COURSES OF INSTRUCTION

* Elective courses in a particular area always have as prerequisite that area's core courses (Section 4.1); students not in the Faculty of Management may ask permission of the instructor if they wish to have the prerequisite waived. Whenever other prerecuisites exist they are listed.

SPECIAL NOTE

Courses numbers involve a seven place designation (see illustration below).

280	–	3	2	3	B
F. 1		F. 2	F. 3	F. 4	F. 5

Field 1 – Involves a three–digit number designating the department or group within the University offering the course. In the Faculty of Management the following association of numbers and subject areas will be used.

271	Accounting	276	Policy
272	Behavioural Science	277	Quantitative Methods
273	Computers and Systems	278	General
274	Finance	279	Economics and Industria Relations
275	Marketing	280	Core

Field 2 – is a number which designates the level at which the course is usually taken.

Number	Year usually taken in
2	Sophomore
3	Junior
4	Senior

Field 3 – designates the subject area, being the third digit of Field 1 for elective courses.

Field 4 – designates the sequential number of the course in that subject.

Field 5 – is a letter designating the time of year the course is given.

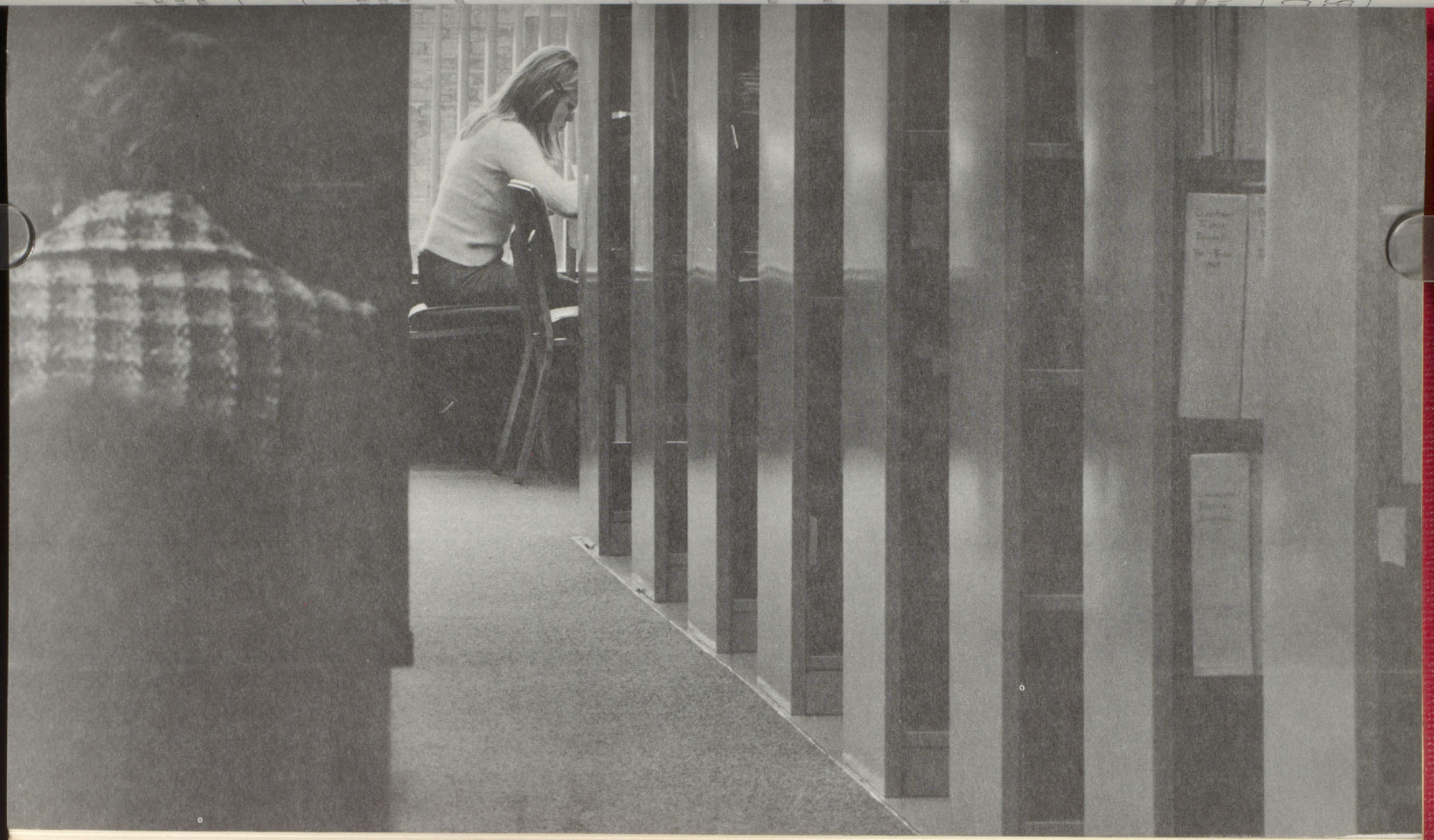
A: duration first term only
B: duration second term only
D: duration through first and second terms

The number of credits that a course carries is not indicated in the course number; in the following course descriptions the course credits are indicated.

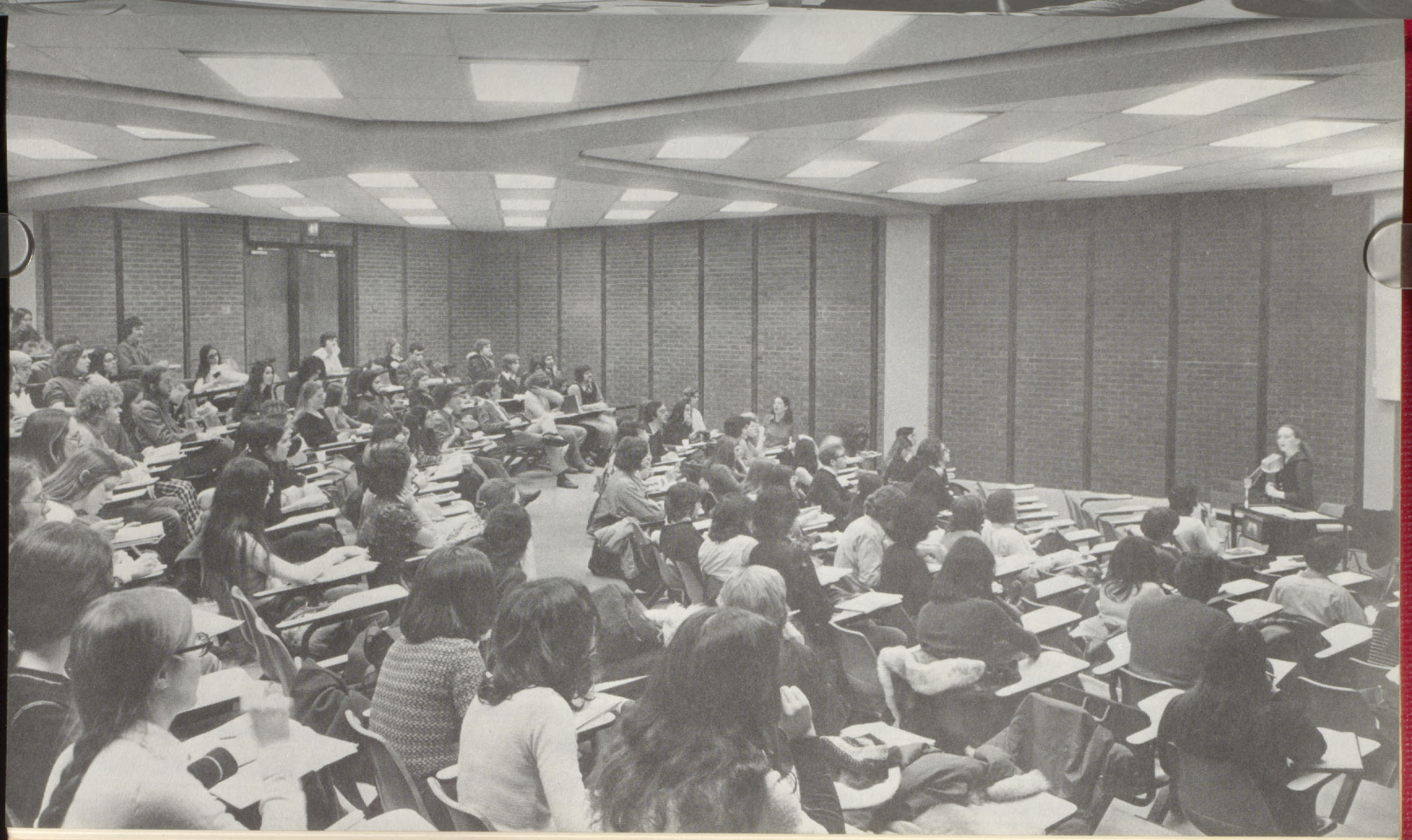
Example: The course number above 280–323B denotes a course offered by the Faculty of Management, part of the core, usually taken in the Junior year, in Behavioural Science, the third course in that subject, given in the second term. This corresponds to Behavioural Science III (see Table in Section 3.1).

4.1 CORE COURSE DESCRIPTIONS

280–211A,B ACCOUNTING I. (3 Credits). For students not intending to specialize in the subject. An introduction to business accounting, considered as an information system serving the decision needs of investors and lenders (financial reporting), and as an aid to management in the planning and control of operators (management accounting). Staff









280–212A ACCOUNTING. (3 Credits). For students intending to specialize in the subject. An introduction to the elements of financial accounting and accounting theory. theory.
Staff

280–221A BEHAVIOURAL SCIENCE I. (3 Credits). An introduction to social psychology. Method and theories of analysing individual and small group behaviour. Topics include person perception, social motivation, attitudes, conformity, group structure, group dynamics and leadership phenomena. Experimental approach to social behaviour is emphasized.
Professor Kanungo

280–222B BEHAVIOURAL SCIENCE II. (3 Credits). An introduction to Organizational Behaviour. The social psychology of organizations, the relationship of man to the organization in which he works, his motivation, attitudes and involvement in his work. Theories of perception, motivation and leadership as they relate to organizational problems.
Professor Kanungo

280–323A,B BEHAVIOURAL SCIENCE III. (3 Credits). An introduction to organizational theory. The organization as a unit of analysis. Analysis of organizations as distinctive collectivities through an understanding of theories and problems of organization. Contributions of psychology, sociology and economics towards solving organizational problems of adaptation, authority and power, conflict resolution, etc.
Professor Khandwalla

154–200D PRINCIPLES OF ECONOMICS. (6 Credits). An introduction to the study of economics, including price theory, national income determination, money and banking, international economic relations, and economic policy.
Offered by the Economics Department

280–341A,B FINANCE I. (3 Credits; *Prerequisite: Accounting I*). An introduction to financial management and the role of finance, both within the organization and the economy as a whole. Financial decision–making as it applies to diverse types of organizations. The main topics considered are investment decisions, financing, and asset management.
Professor Williams

189–245A,B LINEAR ALGEBRA (3 Credits). Vector spaces over a field. Dimension. Algebra of matrices. Determinants. Cramer's rule.
Offered by the Mathematics Department

280–331A,B MANAGEMENT INFORMATION SYSTEMS I. (3 Credits). This course provides an introduction to computer systems and program flowcharting. Specific emphasis is placed on developing the ability to program (in Fortran) and utilize the resources available on the McGill time–sharing system. Problems of implementing computer systems in the organization are discussed.
Professor Howson

280–393A,B MANAGERIAL ECONOMICS. (3 Credits). The course focuses on the application of economic theory to management problems and the economic foundations of marketing, finance, and production. Attention is given to the following topics: price and cost analysis, demand and supply analysis.
Staff

280–351A,B MARKETING I. (3 Credits). The role of marketing in the firm, in the economy and in society. Managerial concerns such as the measurement of marketing opportunity, product development, pricing, advertising, sales management and channel selection are discussed. Also considered are the marketing function in the non–profit organization, comparative marketing systems and social–ethical–political dimensions of modern marketing.
Staff

280–373A,B OPERATIONS RESEARCH I. (3 Credits). The object of the course is to introduce the student to applications of mathematical model building and analysis in managerial decision–making. The student is introduced to some of the following topics: mathematical programming including linear programming and network analysis; simple stochastic processes including waiting lines and inventory systems; simulation.
Professor Sandiford

280–271A STATISTICS I. (3 Credits; *Prerequisite: 6 credits in calculus*). The course introduces the student to statistical concepts and methodology, demonstrates their application to management problems, and constitutes a foundation for further study in the subject. Topics include: descriptive statistics and statistical inference; probability theory, random processes, some important discrete and continuous probability distributions, sampling distributions, introduction to decision theory, index numbers. **Professor Teitlebaum**

280–272B STATISTICS II. (3 Credits; *Prerequisite: 6 credits in Calculus, Statistics I or equivalent).* Decision theory, hypothesis testing and estimation, goodness–of–fit tests, analysis of variance, sample surveys and experimental design, simple and multiple regression and correlation analysis, time series. Students will be expected to use the statistical packages available through the McGill MUSIC facilities to solve regularly assigned statistical problems on the computer. No prior computer experience is assumed. **Professor Teitlebaum**

4.2 DESCRIPTION OF MANAGEMENT ELECTIVE GROUPS

ACCOUNTING
BUSINESS LAW
COMPUTERS AND SYSTEMS
FINANCE
INDUSTRIAL RELATIONS
INTERNATIONAL BUSINESS
MARKETING
ORGANIZATIONAL BEHAVIOUR AND PERSONNEL
POLICY, SMALL BUSINESS AND ENTREPRENEURSHIP
QUANTITATIVE METHODS

Each of the Management Elective Groups offered has a minimum of 18 credits to be taken from the Group. The student will note that a considerable degree of choice is present within each Group.

In general, the student will begin taking courses from his Group in the second semester of his Junior year; however, a student entering his Sophomore year with some exemptions from the Core program may so arrange his program to be able to begin his Group in his Sophomore year.

An adviser is appointed each year for each Management Elective Group to assist students in the general problems of choosing a Group, and to provide students with additional information for intelligent course selection.

4.2.1 ACCOUNTING GROUP

Adviser: Prof. Amey

1.	FINANCIAL ACCOUNTING I	(3 credits)
2.	FINANCIAL ACCOUNTING II	(3 credits)
3.	FINANCIAL ACCOUNTING III	(3 credits)
4.	ACCOUNTING THEORY	(3 credits)
5.	BUSINESS TAXATION	(3 credits)
6.	SYSTEMS AND AUDITING	(3 credits)
7.	MANAGEMENT ACCOUNTING I	(3 credits)
8.	MANAGEMENT ACCOUNTING II	(3 credits)
9.	MANAGEMENT ACCOUNTING III	(3 credits)
10.	COMPUTER-BASED INFORMATION SYSTEM	(3 credits)
11.	SYSTEMS ANALYSIS	(3 credits)
12.	MANAGEMENT INFORMATION SYSTEMS	(3 credits)
13.	BUSINESS LAW	(6 credits)

Unlike other elective groups, the accounting program has been designed on the understanding that students wishing to follow this specialization will be able to decide accordingly immediately on entry, instead of at the beginning of their junior year. For those exceptions (with grade C or better in course 280–211) who decide on accounting specialization *during* the sophomore year, special arrangements will be made to convert. This will involve additional work without supervision during the summer vacation. Any such students should consult the Faculty Adviser for Accounting as early as possible.

The Accounting Group is made up of nine courses in Accounting (1–9 above) and four courses in related subjects (10–13 above). It is designed primarily to provide a reasonably analytical introduction to accounting and cognate subjects for students seeking careers in industry, government service or the accountancy profession.

Students who intend to enter the accountancy profession as chartered accountants must take courses 1 to 7 above. Such students will be eligible for registration as students for the Diploma of Licentiate in Accountancy (see section 3.3).

Students who intend to enter the profession, or who are preparing for careers in industry, government service or R.I.A., but who prefer to spend their university years studying a broader range of subjects, leaving more of their professional education until after graduating, must take courses 1, 2 and 7 and any other three courses in the above list.

Intending C.A. students will be permitted to substitute a course in Business Policy for the non-Management elective in their Senior year.

Intending C.A. students may gain exemption from all but five of the qualifying courses for the C.A. examinations if they so desire. The program for such a student, entering the B.Com. program with no exemptions, would be as follows:

	Year	Courses
Core	1	As stated in 3.1.4 (including 280–212A)
	2	Finance I, Managerial Economics, Management Information Systems I, Operations Research
	3	Marketing I, Behavioural Science III
Management Elective Group	2	Financial Accounting I and II, Management Accounting I
	3	Financial Accounting III Systems & Auditing, Business Taxation, Management Accounting II
Non–Management Elective Group	1	6 credits
	2	6 credits
	3	6 credits outside the Faculty, or Business Law*
Unrestricted Elective	2	Accounting Theory
	3	Corporate Policy* or Seminar in Organization Strategy

The asterisked courses may alternatively be taken during the summer, outside of the degree program, at the Centre for Continuing Education.

It should also be noted that students are advised to take Accounting Theory in the *junior* year as their unrestricted elective.

4.2.2 BUSINESS LAW GROUP 2

278–381D	BUSINESS LAW	6 Credits
491–202A,B	CONSTITUTIONAL LAW II	3 Credits

491–403B	ADMINISTRATIVE LAW I	3 Credits
491–404B	MUNICIPAL LAW	3 Credits
491–412D	LEGAL PROBLEMS IN GOVERNMENT CONTROL OF BUSINESS	6 Credits
491–313A	TAXATION I	3 Credits
493–435B	BANKRUPTCY AND INSOLVENCY	3 Credits
494–460A	ADMIRALTY	3 Credits
494–461A	INSURANCE	3 Credits
494–366A	BUSINESS ASSOCIATIONS I	3 Credits
494–367B	BUSINESS ASSOCIATIONS II	3 Credits
495–369A	LABOUR LAW I	3 Credits
495–470B	LABOUR LAW II	3 Credits
495–471B	ENVIRONMENT AND THE LAW	3 Credits
485–483B	CONSUMER PROTECTION	3 Credits

The object of this group is to provide the student with a knowledge of law as it applies to management.

The student will take Business Law, offered by the Faculty of Management as a prerequisite, and 12 credits from the courses listed above offered by the Faculty of Law.

4.2.3 COMPUTER AND SYSTEMS GROUP

Adviser: Prof. Howson

1.	COMPUTER–BASED INFORMATION SYSTEMS	(3 Credits)
2.	SYSTEMS ANALYSIS	(3 Credits)
3.	COBOL, FILES (308-230)	(3 Credits)
4.	INFORMATION SYSTEMS DESIGN	(3 Credits)
5.	MANAGEMENT INFORMATION SYSTEMS II	(3 Credits)
6.	ASSEMBLER LANGUAGE (308-210B), OR	(3 Credits)
7.	DATA BASES (308-210B)	(3 Credits)

Items 6 or 7 may be replaced by one of:

8. Three credits chosen from the ACCOUNTING GROUP
9. Three credits chosen from the FINANCE GROUP
10. Three credits from the QUANTITATIVE METHODS GROUP

The object of the group is to provide the student with an opportunity to study the management use of computers and concepts of systems analysis in some depth. The student is required to take all of courses 1–5. Students with strong interest in the technological aspects of computers are advised to take courses 6 and 7 in addition. Students who are primarily interested in the application of computers to management systems may substitute three credits as indicated above. It is recommended that students wishing to enter this group endeavour to take the core course Management Information Systems I in the first year of their program.

4.2.4 FINANCE GROUP

Adviser: Prof. Williams

1.	INVESTMENTS	(3 Credits)
2.	CAPITAL MARKETS AND INSTITUTIONS	(3 Credits)
3.	CORPORATE FINANCE	(3 Credits)
4.	PUBLIC FINANCE*	(6 Credits)
5.	QUANTITATIVE METHODS IN FINANCE	(3 Credits)
6.	ADVANCED TOPICS IN THE THEORY OF FINANCE	(3 Credits)
7.	MONEY AND BANKING*	(6 Credits)
8.	INTERNATIONAL BUSINESS	(3 Credits)
9.	TAXATION	(3 Credits)
10.	BUSINESS LAW	(6 Credits)
11.	COMPUTER–BASED MANAGEMENT INFORMATION SYSTEMS	(3 Credits)
12.	SYSTEMS ANALYSIS	(3 Credits)
13.	MANAGEMENT ACCOUNTING III	(3 Credits)

14. INTERNATIONAL TRADE* (6 Credits)
15. INTERNATIONAL FINANCE (6 Credits)

*Offered by the Economics Department.

The object of the Finance Group is to provide the student with an opportunity to study and understand, in depth, the theory of finance, financial management, and the role of finance both within the organization and the economy as a whole. A list of 15 courses is shown above. The first seven deal with subject matter central to the study of finance. The following eight are supplemental and are intended to support the student's finance studies. The requirements of the Finance Group are met by selecting 18 credits from the list above of which at least six credits are taken from among the first seven courses.

4.2.5 INDUSTRIAL AND LABOUR RELATIONS GROUP

Adviser: Prof. Goldenberg

1. INDUSTRIAL RELATIONS (6 Credits)
2. SEMINAR IN INDUSTRIAL RELATIONS (6 Credits)
3. LABOUR ECONOMICS AND INSTITUTIONS (6 Credits)
4. PUBLIC POLICY IN INDUSTRIAL RELATIONS (6 Credits)
5. COLLECTIVE BARGAINING (3 Credits)
6. GROUP DYNAMICS AND INTERPERSONAL RELATIONS (3 Credits)
7. STRATEGIES OF MANAGEMENT & ORGANIZATIONAL DEVELOPMENT (3 Credits)
8. CREATIVE AND ADAPTIVE ORGANIZATIONS (3 Credits)
9. SEMINAR IN ORGANIZATION STRATEGY (3 Credits)
10. TECHNIQUES OF SOCIAL RESEARCH (3 Credits)
11. INDUSTRIAL SOCIOLOGY (3 Credits)

All students in this group are required to take Item 1 in their sophomore or junior year. Item 2 can be taken only in the final year.

4.2.6 INTERNATIONAL BUSINESS GROUP

Adviser: Prof. Wright

The objective of the group is to help the student develop conceptual and analytical skills necessary to formulate feasible and effective management policies in multinational environments.

The student will take a minimum of 18 credits according to the following program requirements:

1. INTERNATIONAL BUSINESS ENVIRONMENT (3 Credits)
2. INTERNATIONAL BUSINESS POLICY (3 Credits)
3. INTERNATIONAL FINANCIAL MANAGEMENT (3 Credits)
4. INTERNATIONAL MARKETING MANAGEMENT (3 Credits)
5. At least three credits from among the following courses offered by the Economics Department:
   - THE MODERN ECONOMIC HISTORY OF A SPECIFIC AREA (3 Credits)
   - INTERNATIONAL TRADE & FINANCE (6 Credits)
   - ECONOMIC DEVELOPMENT (3 Credits)
   - AFRICAN ECONOMIC DEVELOPMENT (3 Credits)
   - THE MODERN ECONOMIC HISTORY OF SOUTHEAST ASIA (3 Credits)
   - THE MODERN ECONOMIC HISTORY AND DEVELOPMENT OF LATIN AMERICA (6 Credits)
   - COMPARATIVE ECONOMIC SYSTEMS (6 Credits)
6. At least three credits from among the following courses offered by the Political Science Department
   - POLITICS IN LATIN AMERICA (6 Credits)
   - POLITICS & GOVERNMENT IN SOUTH ASIA (3 Credits)
   - POLITICS & GOVERNMENT IN EAST ASIA (3 Credits)
   - POLITICS & GOVERNMENT IN AFRICA (6 Credits)

Courses 1 and 2 will normally be taken in the junior year. Courses 3 and 4 will be taken in the senior year. The course selections under items 5 and 6 may be taken at any time; it is recommended, however, that they be taken as early in the student's program as possible.

The student should note that the Political Science prerequisite, Introduction to Comparative Government (6 Credits), will be taken in addition to the 18 credits required for this Group.

It is recommended that, where possible, the student try to take an economics course and a political science course both of which focus on the same geographic region, thus acquiring an interdisciplinary familiarity with a given area. With the permission of the adviser, a suitable upper–level course of foreign or international content from another field such as history, sociology, or law may be substituted for the Political Science option.

4.2.7 MARKETING GROUP

Adviser: Prof. Goldberg

1. MARKETING MANAGEMENT (3 Credits)
2. MARKETING RESEARCH (3 Credits)
3. CONSUMER BEHAVIOUR (3 Credits)
4. ADVERTISING MANAGEMENT (3 Credits)
5. INTERNATIONAL MARKETING (3 Credits)
6. SALES MANAGEMENT (3 Credits)

Marketing Related Non–Management Electives

7. GEOGRAPHY 183-412D, ADVANCED URBAN GEOGRAPHY (Spatial Allocation Problems) (3 Credits)
8. SOCIOLOGY 166–E37B or 166–217A, MASS COMMUNICATION (3 Credits)
9. PSYCHOLOGY 204–307D, MULTIVARIATE ANALYSIS OF PSYCHOLOGICAL DATA (6 Credits)

The student is required to take Marketing Management and 15 additional credits of the remaining eight courses listed. "Marketing Related Non-Management" courses may also be taken as non–management electives or as unrestricted electives.

4.2.8 ORGANIZATIONAL BEHAVIOUR AND PERSONNEL GROUP

Adviser: Prof. Khandwalla

1. GROUP DYNAMICS AND INTERPERSONAL RELATIONS (3 Credits)
2. STRATEGIES OF MANAGEMENT & ORGANIZATIONAL DEVELOPMENT (3 Credits)
3. CREATIVE AND ADAPTIVE ORGANIZATIONS (3 Credits)
4. SEMINAR IN ORGANIZATIONAL STRATEGY (6 Credits)
5. CONSUMER BEHAVIOUR AND MARKETING RESEARCH (6 Credits)
6. NATURE AND MEASUREMENT OF HUMAN ABILITIES* (6 Credits)
7. PSYCHOLOGICAL TESTS AND MEASUREMENT* (3 Credits)
8. INDUSTRIAL SOCIOLOGY** (3 Credits)
9. ADVANCED INDUSTRIAL SOCIOLOGY** (3 Credits)

* Offered by the Psychology Department
** Offered by the Sociology Department

Students in this Group choosing Psychological Tests and Measurement and/or Nature and Measurement of Human Abilities will not be required to take Introductory Psychology, but should notify the course instructors that Introductory Psychology has not, in fact, been taken.

4.2.9 POLICY SMALL BUSINESS & ENTREPRENEURSHIP GROUP

Adviser: Prof. Pugsley

The student takes a minimum of 18 credits consisting of:

1. MANAGEMENT ACCOUNTING I (3 Credits)
2. CORPORATE FINANCE (3 Credits)
3. MARKETING MANAGEMENT (3 Credits)

4. SMALL BUSINESS POLICY (3 Credits)

In addition, a total of six credits from among the following:

5. ENTREPRENEURSHIP AND CORPORATE POLICY (3 Credits)
6. BUSINESS TAXATION (3 Credits)
7. SEMINAR IN ORGANIZATIONAL STRATEGY (3 Credits)
8. CREATIVITY, ORGANIZATION AND MANAGEMENT (3 Credits)
9. BUSINESS LAW I (3 Credits)
10. BUSINESS LAW II (3 Credits)
11. SALES MANAGEMENT (3 Credits)
12. INTERNATIONAL MARKETING (3 Credits)

The student is recommended to consider one or two approved economics courses among his electives.

Unlike the other groups which, by their names, suggest a relationship with particular professions or departments of sizeable corporations, this group is intended for the student who is inclined toward small business and the objective of hopefully coming to own such a business, with the rewards and hazards this usually involves. Because the group spans several areas rather than concentrating and examining in depth as the other group selections do, some measure of coordination is necessary. The student in this group therefore, will be required to do a project study in his senior year on some particular small or medium–sized company or industry that consists mostly of small business units, and this project report will be supervised by the group adviser.

4.2.10 QUANTITATIVE METHODS GROUP

Adviser: Prof. Loulou

1. OPERATIONS RESEARCH II (3 Credits)
2. STATISTICS III* (3 Credits)
3. STATISTICAL METHODS (6 Credits)
4. MARKOV CHAINS (6 Credits)
5. ADVANCED CALCULUS (3 Credits)
6. DIFFERENTIAL EQUATIONS (3 Credits)
7. ADVANCED TOPICS IN QUANTITATIVE METHODS* (3 Credits)
8. SIMULATION* (3 Credits)
9. ADVANCED TOPICS IN STATISTICS* (6 Credits)
10. OPTIMIZATION THEORY AND METHODS** (6 Credits)
11. COURSES IN COMPUTER SCIENCE (up to 6 Credits)
12. QUANTITATIVE METHODS IN FINANCE (3 Credits)

*Taken jointly with MBA students in the Faculty.
**Offered by Professor Loulou (Faculty of Management) through the School of Computer Science.

Courses 1 and 2 are required.

Students who want to acquire a deeper foundation in Quantitative Methods are urged to take most of courses 3–6 given by the Mathematics Department, and course 11 given by the School of Computer Science. In addition, further courses given by the Mathematics Department should be chosen, in consultation with the Group Adviser, as their non–Management electives. Such students should also consider following a Major program in Mathematics (see Section 3.2). Details of the Major requirements can be obtained from the Group Adviser.

Students who want to follow a more applied plan of studies should take courses 7, 8, 9 and 12.

Courses 9 and 10 are suited to both categories of students.

Subject to the above comments, the student should choose a total of 18 credits from the above list.

4.3 ELECTIVE COURSES IN THE FACULTY OF MANAGEMENT

271–311A FINANCIAL ACCOUNTING I. (3 Credits; *Prerequisite: 280–212A*) Intermediate level financial accounting. Staff

271–312B FINANCIAL ACCOUNTING II. (3 Credits; *Prerequisite: Financial Accounting I*). Continuation of intermediate level financial accounting. Staff

271–313A MANAGEMENT ACCOUNTING I. (3 Credits). Cost accounting, budgeting and budgetary control, standard costing, breakeven analysis, variable costing, costs for decision–making. Professor Laybourn

271–411B ACCOUNTING THEORY (3 Credits; *Prerequisite: Financial Accounting II*). An introduction to the underlying theory and issues involved in external financial reporting. Staff

271–412B BUSINESS TAXATION (3 Credits; *Prerequisite: Financial Accounting II*). An examination of federal income tax and its impact on business operations. The material will cover the tax treatment of individuals, partnerships and corporations, and consideration will also be given to international aspects. Proposals for tax change since the Carter Commission Report will be reviewed and emphasis will be placed on concepts underlying the most recent legislation. Professor Laybourn

271–413B SYSTEMS AND AUDITING (3 Credits). The principles of accounting systems design and auditing. Staff

271–414A FINANCIAL ACCOUNTING III. (3 Credits; *Prerequisite: Financial Accounting II*). Advanced topics in financial accounting. Staff

271–415B MANAGEMENT ACCOUNTING II. (3 Credits; *Prerequisite: Management Accounting I*). A critical evaluation of accounting control systems and some related quantitative business controls. Conceptual and measurement problems in evaluating performance, including problems of decentralization. Control of the data–information flow. Professor Amey

271–416A MANAGEMENT ACCOUNTING III. (3 Credits; *Prerequisite: Operations Research I*). A survey of decision concepts, model types, and solution methods, preliminary to specifying the relevant data bases for a number of common types of business decisions. Professor Amey

272–420A GROUP DYNAMICS AND INTERPERSONAL RELATIONS. (3 Credits) Students will explore theory, research, and applications relating to group dynamics in task–oriented groups. Students will increase their level of awareness of group dynamics and their skills at functioning in work groups. Teaching/learning methods will include lecture and discussion, learning cells, skill development exercises (role plays, video–tape analyses) and training laboratories (task group development and interpersonal sensitivity). Professor Thomson

NOTE: *Elective courses in a particular area always have as prerequisite that area's core courses (Sect. 4.1); students not in the Faculty of Management may ask permission of the instructor if they wish to have the prerequisite waived. Whenever other prerequisites exist they are listed.*

272–421B **STRATEGIES OF MANAGEMENT AND ORGANIZATION DEVELOPMENT** (3 Credits) Students will examine theory and research related to management and organization development activities in organizations. Such procedures as management training and development, organizational diagnosis, career planning, team development, etc. will be evaluated as tactics of organizational development. Students will engage in a major field project involving an in–depth analysis of a corporation's development activities.
Professor Thomson

272–422A **CREATIVITY, INNOVATION, AND MANAGEMENT.** (3 Credits) The course will deal with what we know about creativity, the process of innovation, the management of creativity, and the implications of innovation for modern management. The accent will be on studies of actual innovations, of creative individuals and organizations, interviews with creative managers, case studies and field studies.
Professor Khandwalla

273–332A **COMPUTER BASED INFORMATION SYSTEMS** (3 Credits). Methodology, techniques and components of systems design and programming, with emphasis on management information systems.
Mr. Bates

273–333B **SYSTEMS ANALYSIS** (3 Credits). Theoretical approaches to systems analysis are investigated. Analytical, algorithmic and heuristic optimization methods are considered from the viewpoint of management decision–making. Emphasis is placed on developing programs to solve related problems. Professor Howson

273–431A **INFORMATION SYSTEMS DESIGN.** (3 Credits; *Prerequisite: 273–332A and 273–333B*). Methods and procedures of designing business information systems are discussed. A comprehensive case study extending throughout the term emphasizes the application of the methodology. Professor Howson

273–432B **MANAGEMENT INFORMATION SYSTEMS II.** (3 Credits). This course is concerned with the management of the design and implementation of information systems. Systems to service functional requirements of the organization concepts of total information systems will be considered. The case study method will be used. No prerequisites but enrolment restricted to maintain 1:1 ratio of students specializing in computer systems with non–specialists.
Professor Howson

274–342A **QUANTITATIVE METHODS IN FINANCE.** (3 Credits). Theory of financial decision–making; mathematical models in financial analysis; applications of statistical methodology in finance.
Professor Whitmore

274–441A **INVESTMENTS** (3 Credits). Utilizing the basics of modern decision theory, this course examines the valuation problem from the point of view of the firm making capital budgeting decisions and the shareholders valuing the firm. Also covered are: determinants of stock prices; dividend policy; study of growth models and valuation of growth stocks; valuation and the context of portfolio diversification, forecasting stock prices and the study of the overall investment environment.
Dr. Boeckh

274-442B **CAPITAL MARKETS AND INSTITUTIONS** (3 Credits). The study of capital markets through flow of funds analysis covering major financial institutions and their activities. Covers topics such as functions and efficiency of capital markets; securities regulations; risks and rates of return in debt and equity markets; term structure and interest rates; mortgage markets. Dr. Boeckh

NOTE: *Elective courses in a particular area always have as prerequisite that area's core courses (Sect. 4.1); students not in the Faculty of Management may ask permission of the instructor if they wish to have the prerequisite waived. Whenever other prerequisites exist they are listed.*

274–443A CORPORATE FINANCE (3 Credits). A practical and theoretical treatment of capital as a factor of production to the firm. Saving, investing, the creation and flow of money capital within the economy. Financial markets, the rate of interest, and the sources and costs of money capital to the firm. Optimal capital structure and dividend policy. Professor Williams

275–352B MARKETING MANAGEMENT (3 Credits). This courses focuses on the problems of the marketing manager in the measurement of market opportunity and the allocation of marketing effort. Emphasis is placed on analytical techniques based on the behavioural sciences, economics, accounting and management science that can be of use to marketing managers in the development of effective marketing plans. Professor Shapiro

275–451A MARKETING RESEARCH. (3 Credits; *Prerequisite: Marketing Management or permission of instructor*). Training in the design, execution and interpretation of survey and experimental methods in marketing. Emphasis is placed upon sample design, data collection and data processing; evaluation of alternative, experimental designs, execution of problems and interpretation of data. A review of illustrative research studies is made; an actual study is designed and data are collected and interpreted. Professor Goldberg

275–425B CONSUMER BEHAVIOUR. (3 Credits; *Prerequisite: Marketing Management or permission of instructor*). A study of basic factors influencing consumer behaviour. Attention is focused on psychological, sociological and economic variables including motivation, learning, attitude, personality, small groups, social class, demographic factors and culture, to analyze their effects on purchasing behaviour. Professor Goldberg

275–453A ADVERTISING MANAGEMENT. (3 Credits). Surveys the field of advertising in its social and management contexts. Examines organization as it relates to the advertisers, the agency and media. Develops the creative approach, strategy and tactics as related to the total marketing management. Staff

275–454B INTERNATIONAL MARKETING. (3 Credits). In this course the student analyzes the major forms of international marketing; the impact of differing environments upon marketing policies and strategies; the segmentation of multinational markets; the development of international channel systems; the roles of marketing in developing countries, in communist countries and in integrated markets and trade blocs.

275–455B SALES MANAGEMENT. (3 Credits). An analytical study of the techniques and policies employed in the operation of a sales organization. The approach is from the viewpoint of the sales manager. Recruiting, training, controlling and managing the sales force, sales appeals, quotas and sales analysis and forecasting will be discussed. Staff

275-456A INDUSTRIAL MARKETING (3 Credits). Lectures to elaborate the complexity of the industrial buying process followed by industrial marketing problems of product, price and promotion strategy, concluding with discussions on industrial marketing research and planning. **OBJECTIVE**: to develop understanding of the complexity of industrial buyer-seller relationships by studying within one framework, the industrial purchasing and marketing process. Understanding the industrial marketing environment as it exists in real life by analyzing specific case studies, researched from business organizations. To acquire skills to develop strategy utilizing concepts that represent current thinking in each of the major functional areas. Staff

NOTE: *Elective courses in a particular area always have as prerequisite that area's core courses (Sect. 4.1); students not in the Faculty of Management may ask permission of the instructor if they wish to have the prerequisite waived. Whenever other prerequisites exist they are listed.*

276–463A **ENTREPRENEURSHIP AND CORPORATE POLICY.** (3 Credits) Selected business case problems embracing the top management viewpoint in medium–sized to larger–sized companies; sizing up situations; formulating policies and planning programs of action; organizing administrative personnel and putting plans into action; control, day–to–day administrative problems, follow–up and re–appraisal. Emphasis is on basic objectives, and how each department can contribute most efficiently to the overall aims of the firm. Professor Pugsley

276–464B **SMALL BUSINESS** (3 Credits). Much the same kind of coverage as in Corporate Policy, but concerned specifically with Small Business, which has different problems – identification of initial opportunity, finance to get started, early survival, etc. – from the corporations in later stages of development considered in Corporate Policy. Professor Pugsley

276-465A **SEMINAR IN ORGANIZATIONAL STRATEGY** (3 Credits). This course takes a careful look at the concept of strategy and how organizations go about making strategy. The course will run in seminar form and will revolve around a set of readings and a field project. Groups will study local organizations and write papers on their strategy - past, present and future. Professor Mintzberg

277–372A **STATISTICS III.** (3 Credits). Managerial Decision–Making; stochastic process; Bayesian inference; decision theory; analysis of variance and experimental design; time series and forecasting; sample survey methods; quality control; non–parametric methods. The use of the computer as an aid in statistical analysis is stressed throughout the course. Professor Teitlebaum

277–374B **OPERATIONS RESEARCH II.** (3 Credits). Several topics introduced in Operations Research I will be pursued in greater depth. Applications of these and other topics to managerial problems. Professor Sandiford

278–482A **INTERNATIONAL FINANCE.** (3 Credits). This course examines operational problems of financial management in the multinational enterprise: forecasting adversities in the international financial environment; managing foreign exchange risk; transfer pricing and profit remittance policies; multinational capital budgeting; use of Eurodollars and overseas sources of capital; consolidation of financial statements; etc. Professor Wright

278-382B **INTERNATIONAL BUSINESS** (3 Credits. *Prerequisite: None.*) An introduction to cultural, economic and political aspects of domestic, international and foreign environments and their effects on the international operations of business firms. The course seeks to familiarize the management student with the expanded world of the international businessman by (1) examining the underlying concepts of international economic theory; (2) developing a framework for examining country environmental constraints (educational, sociological, economic, political-legal) and relating them to the operations of multinational enterprise; (3) studying the relationship between the international firm and the nation state, with particular reference to Canadian foreign ownership policies; (4) examining the international payments system and balance of payments concepts; and (5) discussing selected topics such as the role of multinational enterprise in economic development and planned economies.

278–383B **INTERNATIONAL BUSINESS POLICY** (3 Credits. *Prerequisite: International Business Environment*). This course develops conceptual approaches to international business strategy, organizational structure, and control arrangements.

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Attention is focused on the strategic planning process, concepts, format, setting of specific objectives, and formulation of international strategies. Major criteria in developing overseas expansion and ownership strategies are considered, with emphasis on alternative forms of involvement such as international joint ventures, licensing agreements, management contracts, and turnkey projects.

278–384D BUSINESS LAW. (6 Credits). Law of contract, sale, agency, partnership, company law and negotiable instruments. Staff

278–E20A MANAGEMENT. This course will review how the modern busines organization came into existence and how it affects and is affected by society, its own employees at all levels, governments and changes in science, world politics, etc. The strengths and weaknesses of "business" will be examined as well as changes that should and could be made to benefit society.
Students will be expected to demonstrate reasonable skills both orally and in writing in English or in French.

278–E21B MANAGEMENT. The lecturer will discuss the role of line and staff, span of control etc., in such functional areas as production, finance, marketing, purchasing, research and development, and their interrelationship. The needs of shareholders, customers, workers and the "professional" managers will be examined.
The course is intended to be relevant to students who wish to know how business and other organizations operate – whether or not the students plan to follow a career in management.
Course 278–E20A is not a prerequisite. It is, however, desirable for students intending to follow a Bachelor of Commerce program to complete both 278–E20A and 278–E21B.
Open only to students in the second year of the College–Equivalent program.

279–293D INTRODUCTION TO INDUSTRIAL RELATIONS (6 Credits). An introduction to the problems of employer–employee relations, including an analysis of the personnel function, the structure, function and government of the modern trade union movement, labour legislation, and the state function and public interest in industrial relations. Professor Bairstow

279–394B COLLECTIVE BARGAINING (3 Credits). This course is designed for those students who wish to study principles in collective bargaining in Canada and abroad. It deals with the structure of the bargaining parties and the structure of bargaining itself. It is problem–oriented and relies heavily on empirical data and case problems. Professor Woods

279-492D PUBLIC POLICY IN INDUSTRIAL RELATIONS (6 Credits). Collective bargaining and public policy towards industrial relations. Emphasis is placed on recent public investigations into labour relations in the federal and provincial jurisdictions; international comparisons are included. Professor Woods

279–491D INDUSTRIAL RELATIONS IN PRACTICE The object of this course is to give the students an opportunity to apply the knowledge that they have gained in their Industrial Relations Program. Students will be encouraged to come to grips with a wide range of problems in industrial relations theory, policy and practice. This is achieved by means of guided reading and small discussion groups, mock collective bargaining sessions, contact with practitioners in the field and problem–oriented research assignments. (Compulsory for Final Year Industrial Relations Majors. Others by permission of the instructor.)
Professor Goldenberg

NOTE: *Elective courses in a particular area always have as prerequisite that area's core courses (Sect. 4.1); students not in the Faculty of Management may ask permission of the instructor if they wish to have the prerequisite waived. Whenever other prerequisites exist they are listed.*

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McGill University

FACULTY OF MANAGEMENT 1973-1974

Samuel Bronfman Building
1001 Sherbrooke St. West*
Montreal 112, Que., Canada
Telephone (514) 392-5981

Master of Business Administration

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* The official McGill mailing address is:
McGill University, P.O. Box 6070, Montreal 101, P.Q.

Legal Deposit 3 73

CALENDAR FOR SESSION 1973-1974

1973

September 10, Monday to September 21, Friday	Registration of first and second year students.
September 10, Monday to September 14, Friday	"Introduction to Management" Week for first year students.
CAREER PLANNING WORKSHOP	For second year students only. TO BE ANNOUNCED.
September 17, Monday	Classes begin for first year and second year students.
October 8, Monday	Thanksgiving Day. Classes cancelled.
December 14, Friday	Classes end for first year and second year students.
December 17, Monday to December 21, Friday	Examination period for first and second year students.
December 21, Friday to January 2, Wednesday	Administrative offices closed from 5:00 p.m. December 21 to 9:00 a.m. January 2, 1974.

1974

January 7, Monday	Classes resume for second year students.
January 14, Monday	Classes resume for first year students.
February 1, Friday	Deadline for applying for graduate fellowships.
February 11, Monday to February 15, Friday	Study Week for second year students only.
April 12, Friday	Classes end for first and second year students.
April 15, Monday to April 19, Friday	Final examination period for first and second year students
June 5, Wednesday to June 8, Saturday	Convocation.

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A.(U.B.C.), Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

STANLEY B. FROST, B.D., M.Th.(Lond.), D.Phil.(Marburg), D.D.(Vic.,Tor.), D.Litt. (Mem.)
Vice-Principal (Administration and Professional Affairs)

EIGIL PEDERSEN, B.A.(SGWU), M.A.(McGill), Ph.D.(Harvard) Vice-Principal (Academic)

STANLEY J. SHAPIRO, A.B.(Harvard) M.B.A., Ph.D.(Penn.)
ALBERT D. TEITLEBAUM, B.Sc., M.Sc., Ph.D. Dean of the Faculty of Management
Associate Dean of the Faculty of Management

ALBERT F. BANVILLE, Administrative Assistant to the Dean

WALTER F. HITSCHFELD, B.A.Sc.(Tor.), Ph.D.
Dean of the Faculty of Graduate Studies and Research

JOHN H. HOLTON, B.Com. (Tor.) Secretary of the Board of Governors

ALLAN McCOLL, D.F.C., B.Com., C.A. Director of Finance

COLIN M. McDOUGALL, D.S.O., B.A. Registrar

1.2 MEMBERS OF FACULTY

L. R. AMEY, B.Ec.(Adelaide), B.A., Ph.D.(Nottingham)

D. E. ARMSTRONG, B.A., B.Com(Alberta), Ph.D.

F. BAIRSTOW, B.S.(Wisconsin), Fulbright Scholar in Ind. Rel.(Oxford)

W. M. BALKE, B.Sc.(Alberta), M.Com.(Toronto), D.B.A.(Colorado)

P. C. BRIANT, B.Com., C.A., M.B.A., Ph.D.(Michigan)

E. BURNETT, Dip.ED.(Aberdeen), B.A.(SGWU), M.Sc.

G. S. CAVADIAS, B.Sc.(Athens), M.Sc.

R. G. COOPER, B.Eng., M.Eng., M.B.A.(Western)

J. A. DUFF, B.A., M.A.(Cambridge), C.A.

W. H. ELLIS, B.A.(Queen's), M.B.A.(Western)

M. C. FINDLAY, B.A., M.A., Ph.D.(Texas)

M. E. GOLDBERG, B.A., M.A.(Columbia), Ph.D.(Illinois)

S. GOLDENBERG, B.A., M.A.

L. A. GORDON, B.Sc., M.B.A., Ph.D.(Rensselaer)

G. J. GORN, B.A.(SGWU), M.Sc.(London Sch. of Econ.), Ph.D.(Penn.)

H. R. HOWSON, B.Com.(Tor.), C.A., M.Com.

G. E. HENDRIX, B.A.(St. Mary's), M.ED.(Manhattan), Ph.D.(Case Western Reserve)

A. R. MARSHALL, B.Com.(Dal.), C.A.(Nova Scotia), M.A.

H. MINTZBERG, B.Eng., B.A.d S.M., Ph.D.(M.I.T.)

R. N. MORRISON, B.Eng., M.A.(Oxon.)

W. H. PUGSLEY, B.Com., M.B.A.(Harvard), Ph.D.

G. RATZER, B.Sc., M.Sc.

D. N. S. ROBERTSON, B.A.(Queen's), B.Paed.(Tor.)

P. J. SANDIFORD, B.A., M.B.A., Ph.D.(Tor.)

A. D. TEITLEBAUM, B.Sc., M.Sc., Ph.D.

H. A. THOMSON, B.A., M.A., Ph.D.(Case Western Reserve)

T. J. VELK, B.S., M.S., Ph.D.(Wisconsin)

G. A. WHITMORE, B.Sc.(Manitoba), M.Sc., Ph.D.(Minnesota)

E. E. WILLIAMS, JR., B.Sc.(Wharton), Ph.D.(Texas)

H. D. WOODS, B.A.(UNB), M.A.(McGill), LL.D.(UNB)

R. W. WRIGHT, A.B., M.B.A.(Dartmouth), D.B.A.(Indiana)

2 MBA PROGRAM GENERAL INFORMATION

2.1 HISTORY

In 1962, after several years of design and preparation, McGill's Faculty of Graduate Studies and Research established the Graduate School of Business. During the year following, new faculty members were hired and considerable time was devoted to the final formulation of a new MBA curriculum. The first class was admitted and teaching began in Duggan House in September 1963.

Next door, in Purvis Hall, the (undergraduate) School of Commerce, part of the Faculty of Arts and Science, continued to function as a separate entity.

An ever-increasing demand for expansion, requiring a controlled and coherent policy which would relate both graduate and undergraduate programs, resulted in the merger of both schools as the Faculty of Management less than five years later, on June 1, 1968.

The new faculty, the most recently formed of McGill's eleven faculties, embraces all management and business education at the University. In 1972 the faculty moved to the modern facilities of the new Samuel Bronfman Building, in close proximity to the business and commercial heart of downtown Montreal.

Located at the heart of the island metropolis of Montreal, McGill University's community weaves in many of its activities with those of the multicultural city around it. This interaction adds an extra dimension to the teaching and research of McGill's Faculties of Agriculture, Arts, Science, Dentistry, Education, Engineering, Graduate Studies and Research, Law, Medicine, and Music and their many schools, institutes, departments, centres, and research units.

Despite this activity, to the eye the McGill campus retains a restful beauty. An avenue, lined with elms planted by former Principal Sir William Dawson, leads from the main entrance gates on Sherbrooke Street through the green lower campus to the Quebec gray stone of the Arts Building. Seen from a city skyscraper, the campus on the lower slopes of Mount Royal, together with the grounds of the Royal Victoria Hospital (one of the University's main teaching hospitals) and the city reservoir, seem to merge in with the mountain-top park.

When bequeathing his 46-acre property and £10,000 for a college, James McGill little realized that Montreal would one day surround his estate and the mountain as well. At his death in 1813, Montreal was only a small town on the bank of the river several miles below his property. A child emigrant from Scotland, fur trader, Montreal businessman, civic and political leader, and military man, he would have been amazed at the growth of Montreal and the size and complexity of the University he founded.

The University's Royal Charter was granted by King George IV in 1821. Today, more than 16,000 students from around the world study for their degrees on the Montreal campus (which now covers an area of almost seventy acres) and at Macdonald College at the west end of the island. Macdonald College was established in 1907 for studies in agriculture, teacher training, and household science. It has since widened its facilities at the College and the Centre for Continuing Education at McGill provides between 13,000 and 14,000 Montrealers with the opportunity to continue their education at night. Countless other Montrealers participate in the many conferences, lectures, musical and dramatic productions, film showings, etc., which take place on the two campuses.

2.2 MANAGEMENT LIBRARY

The Faculty's Library is conveniently located on the second floor of the new Bronfman Building. The collection covers business and management, finance, accounting, marketing, industrial relations, industrial psychology, computer programming, statistics, taxation and economics. There are over 35,000 volumes of books, pamphlets, corporation and other reports and monographs, together with a good collection of government documents. Additionally, more than 600 periodicals are currently received.

The library serves a wide community. Most business concerns in the Montreal area, as well as students and staff from the other McGill faculties, use its resources.

Students of the Faculty of Management are equally privileged in having full access to most of the two million publications provided by the University Library System, many of these being located in McGill's specialized collections. The Redpath and the McLennan Libraries (the latter only recently completed) house an extensive general collection of approximately 900,000 volumes.

2.3 AIMS AND APPROACH OF THE M.B.A. PROGRAM

Our primary objective is to help the student acquire the necessary knowledge and skills to analyze and solve complex organizational problems including problems of change in business, government, and other institutions.

This primary objective reduces to the following explicit sub-objectives:

1. The student will acquire a knowledge of the fundamental concepts and theories necessary for effective management. The first year of the program is devoted to basic theories and concepts in both the underlying disciplines and the functional areas of management.
2. The student will develop skills in identifying, defining, analyzing and solving complex problems.
3. The student will become more effective in dealing with people. The program will both present the relevant concepts and train the student in interpersonal areas such as group problem-solving, consultation, and leadership.
4. The student will become more self-aware, responsible and self-reliant. Various phases of the program are intended to enhance these traits, for example, activities to increase the student's awareness of his personal values, beliefs, goals, etc.; ambiguous problem-solving tasks; greater responsibility for his own learning goals.

Most management education programs place their emphasis on the acquisition of knowledge and analytical techniques. Few progams use the knowledge and techniques to develop the problem solving skills of the learner. Even less do programs encourage the self-development and autonomy of the learner. McGill's M.B.A. program does not undervalue the worth of knowledge and analytical techniques. In fact, the major portion of the first year of the program is devoted to basic concepts and theories and to mastering analytical techniques. However, the program is also deliberately designed to enhance such managerial skills as problem-solving, decision-making, researching, communicating, consulting, and inter-personal skills. The design of the second year of the program permits the student to clarify his own learning goals and to select learning experiences (thesis, electives, projects) that contribute to the achievement of his objectives.

2.4 ADMISSION REQUIREMENTS

a) A degree with first class or satisfactory second class standing from an accredited college or university (in any faculty).
b) The Admission Test for Graduate Study in Business.
c) The Test of English as a Foreign Language for foreign applicants whose first language is not English.
d) Foreign applicants must submit a bank letter proving they are able to support themselves financially for the two years of study at McGill.
e) Applicants wishing to proceed into the intermediate quantitative stream must have some knowledge of statistics, calculus and matrix algebra. Qualification for the intermediate stream will be determined by a placement test given prior to the first year. There are no specific course requirements for the introductory stream.

2.5 APPLICATION PROCEDURES FOR ADMISSION

a) Complete the enclosed application form and Personal Academic Background Sheet. Return the first 3 copies of the application form along with the Personal Academic Background Sheet and the $15 fee to the address below:

Admissions Officer, M.B.A. Program,
Faculty of Management,
McGill University,
1001 Sherbrooke St. West,
Montreal 101, Quebec, Canada.
(Tel. no.: (514)392-4336)

Please note that a file will not be started for processing until an official application *with the $15 fee* is received. Please make sure you have indicated whether you are applying for the first or second year of the M.B.A. program.

b) Arrange to have duplicate copies of complete transcripts of your undergraduate marks (and graduate, if any) forwarded to us by your university.
c) Arrange to have two letters of reference forwarded to us by current, or former, university teachers. (Those 3 to 5 years out of university may ask employers to provide references.)
d) Arrange to have the Admission Test for Graduate Study in Business score and the Test of English as a Foreign Language score (where applicable) forwarded to us.
e) In the event of your acceptance into our program, send the bottom portion of your green copy of the application form to the Registrar's Office and the white stub you receive from the Graduate Faculty to us.
f) Only if space allows will applications received after July 1 be considered. Applications received after August 1 will be considered only in *exceptional* circumstances. Please note that preference will be given to applicants who apply early.

g) All applicants (including foreign applicants) must take the Admission Test for Graduate Study in Business. To apply for this test, write directly to: ADMISSION TEST FOR GRADUATE STUDY IN BUSINESS, Educational Testing Service, Box 996, Princeton, New Jersey 08540, U.S.A.

h) Foreign applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL). To apply for this test, write directly to: THE TEST OF ENGLISH AS A FOREIGN LANGUAGE, Box 899, Princeton, New Jersey 08540, U.S.A.

i) Overseas students should apply for visas from the Canadian Embassy nearest them. Procurement may take up to three months.

j) A registration deposit of $50 will be required from those admitted into the M.B.A. program. Cheques or money orders for $50 should be made payable to McGill University: (1) the $50 fee is payable upon receipt of our letter of acceptance and reserves a place for you; (2) if the $50 fee is not paid within 30 days of your acceptance, we will assume that you are no longer interested in the program and no reservation will be made for you; (3) the fee is applied to tuition fees for those who inform us by July 1 that they will be joining our program and who, in fact, register by the given date of registration; (4) the fee is forfeited if accepted candidates do not inform us by July 1 that they do not intend joining our program for the forthcoming academic year; (5) the fee is refundable if accepted candidates inform us by July 1 that they will not be joining our program for the forthcoming academic year.

2.6 SPECIAL POINTS REGARDING THE M.B.A. PROGRAM

a) The M.B.A. program is a two-year program. It cannot be done in one year. If you have done one year at another university and you wish to be considered for the second year of our program, you must submit course descriptions, grades achieved, and your score for the Admission Test for Graduate Study in Business. Your request will then be studied by the Admissions Committee.

b) Credits for previous courses taken may be given in exceptional circumstances. A maximum of two course credits would be allowed. However, two other courses would have to be taken in place thereof.

c) There is no specialization. All courses offered in the first year must be taken. There are electives in the second year of the program.

d) There are two semesters. The academic year begins in September and ends May 1. (Please note there is no January session.)

e) It is up to the applicant to supply all the documents required. You must also have your ATGSB and TOEFL scores sent to us.

f) We cannot assist in finding employment for foreign students. The regulations governing foreign students working in Canada should be checked with the nearest Canadian Embassy or Consulate (visas must be checked too.)

g) Applicants must make their own arrangements for accommodation. (Refer to Facilities section of Announcement.)

h) Foreign applicants must supply us with a bank reference stating they are able to support themselves financially for the two years of study at McGill.

i) Foreign students wishing to work in Canada before applying to McGill, in order to finance their studies, must obtain landed immigrant status. Apply to the Canadian High Commission for landed immigrant status.

j) GRADING: The pass mark for each course is 65%. Any student failing two courses in one term or three courses in two terms can expect to be asked to withdraw from the program. Students in first year will be permitted to take two supplemental examinations which are normally held in July.

2.7 DIRECT ENTRY TO SECOND YEAR OF PROGRAM

a) Each year a small number of qualified students are admitted, upon application, directly into the second year of the M.B.A. program.

b) Requirements for admission entail successful completion of the eight evening courses leading to the Faculty's Diploma in Management. The Diploma program is arranged by McGill's Centre for Continuing Education in association with the Faculty of Management.
(*Note:* Admission is competitive, being limited by the number of openings in a given year. Considerable emphasis is laid on a student's overall average in the Diploma program.)

c) TESTS: All applicants must take the Admission Test for Graduate Study in Business (ATGSB).

d) ADMISSION PROCEDURES: The same admission procedures must be followed as those outlined for first year applicants.

3. CURRICULA AND PROGRAMS

3.1 DIPLOMA PROGRAM

1. Statistics for Business Decisions
2. Managerial Finance
3. Economic Analysis of Business
4. Business and Industrial Psychology
5. Social and Economic Environment of the Firm
6. Data Processing and Computers
7. Introduction to Operations Research
8. Introduction to Marketing Management

An announcement containing more information about the courses in the above program may be obtained from:

Centre for Continuing Education,
McGill University,
Strathcona Hall,
772 Sherbrooke Street West,
Montreal 112, Quebec, Canada.
Telephone: (514) 392-5244

3.2 M.B.A. PROGRAM: GENERAL OUTLINE

McGill's Management Program, covering two academic years, leads to the degree of Master of Business Administration. The diagrams below provide an overview of the program and brief descriptions of the various stages follow.

3.2.1 FIRST YEAR

FIRST TERM
INTRODUCTION TO MANAGEMENT
Statistics and Decision Theory

SECOND TERM
CHRISTMAS BREAK
Operations Research

(or Introductory Statistics)
Accounting
Managerial Economics
Computers
Behavioural Science

(or Calculus and Matrix Algebra)
Finance
Macro Economics
Marketing
Organizational Behaviour

3.2.2 SECOND YEAR

FIRST TERM
CAREER PLANNING WORKSHOP

Skill Development
Management Policy
Management Policy
Research paper
Elective
Elective
Elective
Elective

SECOND TERM
CHRISTMAS BREAK

Skill Development
Research paper
Research paper
Research paper
Elective
Elective
Elective
Elective

3.3 FIRST YEAR PROGRAM

In the first year, the student will have available two streams. In the advanced quantitative stream he takes Statistics and Decision Theory (277-671A) in the first term and Operations Research (277-672B) in the second term. Students with sufficient quantitative background and satisfactory performance on a placement test may enrol in this stream.

In the regular stream, students substitute Calculus and Matrix Algebra for the Statistics course in the first term and Introductory Statistics for Operations Research in the second term. Students will then take Statistics and Decision Theory and Operations Research in place of one of the elective offerings in the second year.

Introduction To Management. The Introduction to Management session, consisting of a business game and discussion sessions, is intended to introduce the student into the complexity of the managerial process and to explore issues such as the roles and responsibilities of the manager in contemporary society and the relation of management education to management practice. The student will also learn how to use the educational resources of the Faculty and the University.

4 COURSES OF INSTRUCTION

4.1 CORE COURSE DESCRIPTIONS

277-671A **STATISTICS AND DECISION THEORY.** This course covers the use of statistics in managerial decision-making. Topics covered are: stochastic processes; Bayesian inference; decision theory; tests for association and goodness of fit; analysis of variance and experimental design; regression and correlation analysis; time series analysis; index numbers; sample survey methods; quality control; non-parametric methods. The use of the computer as an aid in statistical analysis is stressed throughout the course. A knowledge of descriptive statistics, probability theory, random variables, statistical estimation, and hypothesis testing is assumed.

271-611A **ACCOUNTING; A MANAGEMENT APPROACH.** This course examines the role of accounting both as an external and an internal information system. However, the stress is primarily on the internal use of accounting data by management for planning and control purposes. The basic concepts of financial accounting are examined and topics covered include the measurement of income, statement analysis, price levels and aspects of business combinations. In the planning and control area, topics covered include cost and control concepts, costing systems, budgeting, differential cost analysis and the measurement of performance.

279-692A **MANAGERIAL ECONOMICS.** This course is primarily devoted to demonstrating the applications of economic theory and methodology in solving business problems. The course opens with a brief review of the economic theory of the firm, with special emphasis on those elements necessary or useful in the analysis of business problems and continues with the development in economic theory of the conceptual foundations of marketing, finance and production. Particular attention is given to the opportunities for the application of incremental analysis, opportunity cost, price relations, income relations, and econometric model-building techniques. The course ends with an introduction to demand analysis and to market and sales forecasting.

273-631A **COMPUTERS.** This course is an introduction to the applications of electronic computers in business and in industry. It covers the following topics: concepts of the logical organization of computers; characteristics of procedure-oriented languages and of executive systems; current trends in computer systems (time-sharing and multiprogramming); and current computer applications and future potentialities, with emphasis on business data processing. The computer course is designed as a service course to the core units. Students will be assigned projects by instructors of core units which will require the use of computers to solve. In the time the students allot to computers they will receive instruction and engage in computer skill development exercises as well as receive guidance by a computer expert on their core unit projects. The design of this course encourages the student to use the computer in the solution of management problems rather than to view computer programming as one more subject to master on the way to obtaining a degree.

272-621A **BEHAVIOURAL SCIENCE.** The course is designed to develop an understanding of the processes that underlie various behavioural phenomena. It is believed that many managerial decisions depend upon a sound knowledge of the dynamics of human behaviour. The course analyzes some of the basic concepts in the area of social psychology and discusses the implication of these concepts for the management. Stressing the development of an awareness of the methodological problems in behavioural research, the course introduces the student to some of the cognitive and dynamic processes within the individual. The processes contribute to the individual's interaction with other individuals within groups and organizations.

277-672B **OPERATIONS RESEARCH.** An introductory course in the concepts and techniques of operations research. The topics covered: linear programming, queue theory, dynamic programming, inventory theory, simulation and others. The emphasis is on application and includes a critical examination of the assumptions of the various models. A reasonable familiarity with elementary calculus, linear algebra and probability is assumed.

274-641B **FINANCE.** This course focuses on financial decision-making with an emphasis on concepts and analysis. The first part deals with financial management. Topics covered include: benefit-cost analysis of investment opportunities; cost of capital; capital structure; methods of financing; financing expansion and contraction; financial analysis and control. The last part deals with external investment and capital markets. Topics covered include: financial institutions and markets; security analysis; portfolio selection and management; capital market equilibrium.

279-691B THE ECONOMIC REGULATORY ENVIRONMENT OF THE FIRM. This course begins with a review of economic systems from the particular point of view of the enterprise. A major part of the course concerns the economic environment of fluctuations and growth. Economic forecasting and the problems of adjusting to the firm's economic environment are introduced within this context. Other topics include an examination of what the businessman should know about principles of public finance, international trade, foreign ownership and the regulation of business.

275-651B INTRODUCTION TO MARKETING MANAGEMENT. This course is designed to familiarize students with the problems of a corporate marketing executive. Although some attention is paid to the social, marketing and economic development and corporate marketing systems, the emphasis is on the tasks, the outlines and the responsibilities of marketing management. The corporate marketing executive is presented as one required to make appropriate advertising, sales management, pricing and product management decisions within a shifting environment which includes competition, government, technology, the structure of demand and the distributive network. The first part of the course is devoted to measuring marketing opportunities and to determining customer desires. Specific problems in product development, pricing, advertising, sales management and physical distribution are then discussed. The marketing mix, the problems of effective marketing planning and the use of appropriate control measures are also emphasized.

272-623B ORGANIZATIONAL BEHAVIOUR. Organizational Behaviour deals with the behaviour of individuals and groups within organizations, and of whole organizations as well. The course will be devoted to developing a conceptual scheme for the analysis of organizational phenomena. In particular, the following key problems will be explored in some depth: integration of human needs and organizational goals; collaboration and conflict resolution; authority and influence; adaptation and change; and the optimal design of organizations. Conceptual material will be made relevant by tying it to the study of on-going organizations by groups of students.

4.2 DESCRIPTION OF COURSES FOR SECOND YEAR PROGRAM

CAREER PLANNING WORKSHOP. The one week Career Planning Workshop serves as an orientation to the second year providing an opportunity for the student to sit back and reflect on his long range goals and their implications for his educational objectives. The first part of this phase consists of a group dynamics workshop to enable the students to become more aware of how groups function. This is followed by the Career Planning stage which consists of a series of structured exercises that helps the students clarify their goals, career objectives, assets and liabilities. The final stage requires that students identify their learning objectives for the second year of the program and plan their program to meet these objectives.

280-602D SKILL DEVELOPMENT. During the course of the M.B.A. program the student gets the opportunity to practise significant managerial skills — problem formulation and analysis, decision-making, research skills, oral and written communication, planning and interpersonal skills. Such activities as simulation and role playing exercises, questionnaires and video-tape feedback are used to enhance students' managerial skills. Skill development is expected to involve about 50 hours of student time and will occur at various points in the program where it is appropriate.

276-661D MANAGEMENT POLICY. The aim of this course is to provide the student with a thorough knowledge of the managerial policy-making process. This is approached in a theoretical way by delving deeply into descriptive theory on topics such as goal systems, organizational structure, managerial work, unprogrammed decision-making, and strategy-making, and by assessing the relevance of the management science techniques at the policy level. This course contains three essential elements – readings of the theory, field studies, and seminars. In essence, the theory of the literature is applied in the field studies and the results are discussed in the seminars. In the field studies, students work in groups of five and analyze various policy aspects of one organization (of their own choosing) throughout the year. This course and other project-type units in the second year provide a workshop in which students can study and improve their skills in field research, problem formulation and solution and group decision-making. The Policy Field Project will involve the students in about three hours of class time per week for a fourteen-week period.

280-601 INDEPENDENT RESEARCH PROJECT. This project is designed to familiarize students with the process and the problems of independent research. The student is given considerable freedom in choosing research topics. The study may be a normative one or a descriptive one. It may be based on primary data or on secondary data. In this project students get the opportunity to work on a one-to-one basis with a faculty member for the entire academic year. Members of the Montreal business community are used as resource consultants when this appears desirable.

4.3 DESCRIPTION OF MANAGEMENT ELECTIVE GROUPS

Each student will take eight one-term electives. Electives will vary from lecture and seminar courses to learning cells. In a cell, five or six students tackle a problem or problems in consultation with a supervisor. Topics for cells can be specified by the supervisor, the students, or both.

Second-year electives will be offered in most or all of the following areas during the 1973-74 academic year.

1. Advanced Topics in Statistics
2. Advanced Topics in Operations Research
3. Optimization
4. Investments
5. Quantitative Methods in Finance
6. Portfolio Theory and Capital Markets
7. Financial Theory of the Firm
8. Advanced Topics in Finance
9. Marketing Research
10. Consumer Behaviour
11. Quantitative Methods in Marketing
12. Industrial Marketing
13. Advanced Topics in Marketing
14. Accounting for Decision
15. Accounting for Control
16. Advanced Topics in Accounting

17. International Business
18. Industrial Relations
19. Creativity, Innovation, and Management
20. Advanced Topics in Organizational Behaviour
21. Advanced Topics in Economics
22. Advanced Topics in Managerial Economics
23. Corporate Planning
24. Entrepreneurship
25. Strategy Making

5 MISCELLANEOUS INFORMATION

5.1 STUDENT EXPENSES

5.1.1 SINGLE STUDENT IN UNIVERSITY RESIDENCE – MINIMUM ESTIMATE

Tuition	$717
Housing and Food – 9 months	1,200
Books and Supplies	320
Other Expenses (Average)	700
	$2,937

5.1.2 MARRIED STUDENT WITH WIFE WORKING, NO CHILDREN – MINIMUM ESTIMATE

Tuition	$717
Unfurnished McGill appartment – 1 year lease	1,440
Food – 9 months (for 2 people)	1,200
Books and Supplies	320
Other Expenses (Average)	800
	$4,477

5.1.3 TUITION

Tuition may be paid in two instalments at an additional cost of $10.00. It covers registration, regular examination fees, fees for the use of laboratories and libraries, charges for the health service and athletic facilities, and membership in the Postgraduate Students' Society. (The original $15.00 fee for processing your application is a separate cost.) All students are required to pay at least half of the total sessional fee 10 days after registration.

5.1.4 MISCELLANEOUS EXPENSES

Personal expenses vary greatly with individual requirements, and clothing, laundry, transportation entertainment and other expenses should be very carefully estimated.

5.2 SCHOLARSHIPS AND FINANCIAL AID

General

Scholarships and Fellowships, available through the Faculty of Management, are awarded on the basis of academic excellence. There are no financial aid forms available to applicants. If you fall within the required category of academic excellence, you will *automatically* be considered for a scholarship/fellowship and so informed at the time of your acceptance into the M.B.A. program.

However, qualified students with limited financial resources should not be deterred from applying for admittance to the M.B.A. program. Information on financial aid offered by sources outside the Faculty of Management is listed herein in the expectation that applicants will seek such aid in all cases for which they are eligible.

Foreign Students

The Faculty is normally unable to offer any financial assistance to foreign students. We regret, therefore, that we must usually have a written guarantee in the form of a bank letter that the student has the necessary funds to complete his studies. Scholarships/fellowships are occasionally awarded to foreign students with exceptional academic ability, but the amount of the financial aid does not cover all the expenses for two years of study. Funds are available, however, through the Canada Council and the Commonwealth and Colombo Scholarship Plans as described under "Governmental Sources" herein, and should be applied for through your own government.

5.2.1 FINANCIAL ASSISTANCE OBTAINABLE THROUGH THE FACULTY OF MANAGEMENT

McGILL ASSOCIATES GRADUATE FELLOWSHIPS IN MANAGEMENT. — These fellowships were established by the McGill Associates, a group of Montreal business and professional men interested in the University, to ensure that the graduate program of the Faculty of Management continues to attract students of a high academic and professional calibre. A number of fellowships are available, each with an annual value of up to $3,600, for students at the Master's level. This amount may be increased in the case of students proceeding to a doctoral degree. Apply to the Dean, Faculty of Management, before May 1.

H. E. HERSCHORN GRADUATE SCHOLARSHIP. — Established in 1965, covering the amount of the current tuition fees and tenable by a student entering either the First or the Second year of the M.B.A. program. Apply to the Dean of the Faculty of Management before May 1.

SEAGRAM BUSINESS FELLOWSHIPS OF THE SAMUEL BRONFMAN FOUNDATION *(Type B Awards)*. — Four type B fellowships of $1,600 are given annually by this foundation to students in their final year of a Master's program or in any year of a Doctoral program. Eligibility is limited to Canadian citzens. Applications are submitted on behalf of candidates by the Dean of the Faculty of Management and interested students should contact him before March 1.

FACULTY OF MANAGEMENT ASSISTANTSHIPS. — Assistantships up to a maximum of $600 are offered to a limited number of students. Student assistants are expected to carry out specific tasks during the year. (Most of these assistantships are awarded to second year students.)

FACULTY OF MANAGEMENT STUDENT LOAN FUND. — A student loan fund has been established and is administered by the Student Aid Office. For further information, apply to: Mr. J. S. Kennedy, Student Aid Office, F. Cyril James (Administration) Building, McGill University.

RODGIE McLAGAN FELLOWSHIPS IN MANAGEMENT. – Two fellowships of $1,500 each have been established by Canada Steamship Lines for graduate study in management. Apply by letter to the Dean of the Faculty of Management before May 1st.

5.2.2 FINANCIAL ASSISTANCE OBTAINABLE THROUGH McGILL UNIVERSITY

McCONNELL MEMORIAL FELLOWSHIPS. – These fellowships were established by the J. W. McConnell Foundation to support postgraduate studies and research at McGill University, and so to strengthen, in quality and numbers, the academic staffs of Canadian universities and schools. These fellowships may be held by students registering in any postgraduate research program at McGill, but only those whose homes are in Canada, or who intend to make their homes in Canada, are eligible to apply. The fellowships are intended to cover full fees, living expenses, the cost of books and such travelling as a Fellow's studies may require. The normal value of a first-year award is $3,500 per annum. The initial award is normally for a period of two years, but the fellowships are intended to carry a student through to a doctoral degree, and may be held for a total of five years. Fellows will be expected to spend the full calendar year (with the exception of a month's summer holiday) on their studies, and may not accept any remunerative appointment during the tenure of the fellowship without permission. Application forms may be obtained from the office of the Dean of the Faculty of Graduate Studies and Research and completed forms must be returned to that office before February 1.

BELL CANADA CENTENNIAL FELLOWSHIPS. – Up to a total of eight graduate fellowships in the amount of $3,500 to Fellow and $1,500 to University (Fellow's tuition fees will be paid out of the $1,500) will be given annually; four of which will be new awards. Candidates must be Canadian citizens or must have held landed immigrant status for one year prior to submitting an application. Applicants must be graduates of a university or college with standards accepted by the A.U.C.C. The field of study is unrestricted, but preference will be given to subject areas relevant to the scientific, political, social or economic needs of Canada. On completion of the fellowship, three copies of a thesis or reasonably detailed account of the work done, should be sent to the Director of Awards, A.U.C.C., who in turn will forward two copies to Bell Canada. Apply before March 1 to Director of Awards, A.U.C.C., 151 Slater Street, Ottawa K1P 5N1, Ontario.

BANK OF NOVA SCOTIA BILINGUAL EXCHANGE SCHOLARSHIPS. – Six annual one-year, undergraduate and graduate awards are available, three to French-speaking candidates and three to English-speaking candidates. Graduate awards are for $3,000 and graduate students will be expected to outline their proposed programs of study. English-speaking winners may attend any Canadian French-speaking university or college and French-speaking winners may attend any Canadian English-speaking university or college provided it is a member, or federated with, or affiliated to a member of the Association of Universities and Colleges of Canada. Apply to Director of Awards, A.U.C.C., 151 Slater Street, Ottawa K1P 5N1, Ontario. Completed applications must be received at the above address no later than March 1.

MAX BINZ BURSARIES FOR FOREIGN STUDENTS. – Established by the estate of the late Max Binz. These Bursaries are valued at $1,000 per annum and are renewable, but are not tenable concurrently with a major scholarship or fellowship and are for summer research only. The Binz Bursaries are intended to help defray the expenses of graduate students coming to McGill from overseas countries (including South and Central America and Mexico). Foreign nationals who are Canadian landed immigrants (and therefore eligible for several categories of Canadian financial assistance) are not eligible for the Bursaries. Apply to Graduate Faculty Fellowships Office, Dawson Hall, McGill University, P.O. Box 6070, Montreal 101, Quebec, Canada. Completed applications must be received by the Faculty Office no later that April 1.

CENTRAL MORTGAGE AND HOUSING CORPORATION GRADUATE FELLOWSHIPS (CMHC). — Fellowship stipends are $3,000 plus tuition fees for students proceeding to a master's degree and $4,000 plus tuition fees for post-master's candidates proceeding to a doctoral degree. (Tenable in a broad range of fields involved in understanding and dealing with urban regional environment.) Candidates must be recommended by the University and must be Canadian citizens or landed immigrants in Canada. Application forms and information are available from: Administrator, Advisory Group, Central Mortgage and Housing Corporation, Ottawa, Ontario. Completed application forms must be received by Central Mortgage and Housing Corporation no later than March 31.

MACKENZIE KING SCHOLARSHIP. — These scholarships, open to graduates of any Canadian University, are one-year awards of approximately $3,000 each, offered in competition for full-time postgraduate studies in Canada or elsewhere and in any field. An applicant must be nominated by the Dean of Graduate Studies (or similar appropriate officer) of the Canadian university most recently attended by the applicant. On behalf of the applicant, the Dean should forward a file consisting of (a) official transcripts of the applicant's academic record at all post-secondary institutions attended; (b) letters of reference from two persons who are able to evaluate critically the record, ability, and personal qualities of the applicant; (c) a brief biographical sketch from the applicant, including specific details of his plans, if awarded a scholarship. The Dean of Graduate Studies should forward the file to the Scholarship and Bursary Office, Room 207, Buchanan Building, University of British Columbia, Vancouver 8, Canada. The file must be received by March 1. If more than one application file is forwarded, the Dean should indicate the order of merit in which he ranks the applicants.

GULF OIL CANADA LTD. GRADUATE FELLOWSHIPS. — Nine fellowships of $3,500 each, plus $1,000 for research expenses, open to residents of Canada who are graduates of institutions which are members of the National Conference of Canadian Universities, and are tenable at any such university. Unrestricted as to field of study. Apply to the Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa K1P 5N1, Ontario. Completed applications must reach the Director before March 1.

HENNESSY FELLOWSHIP. A fellowship of $3,000 to be awarded annually for a period of five years for first-year graduate study in any field of any university. This award is tenable for one year and is available to graduates of McGill University only. Applicants should apply by letter to the Dean of the Faculty of Graduate Studies and Research before February 15, giving a curriculum vitae, the names of three referees and details of the proposed studies. The first award was made to a student of the 1969-70 graduating class.

Note: For further information contact the Registrar's Office at McGill University, 2nd floor, F. Cyril James (Administration) Building, McGill University, Montreal, Quebec, for the booklet entitled *Scholarships, Bursaries, Prizes, Medals, and Loan Funds.*

SOCIETY OF INDUSTRIAL ACCOUNTANTS OF CANADA BUSINESS FELLOWSHIPS. — Five fellowships of $1,200 each are available annually to students enrolled in a graduate business program at Canadian universities. Awards are to be granted to students whose program indicates an interest in Management Accounting and Accounting Research. Apply before April 1 to: Administrative Secretary, Fellowships Selection Committee, Society of Industrial Accountants of Canada, P.O. Box 176, 154 Main St. East, Hamilton, Ontario.

SEAGRAM BUSINESS FELLOWSHIPS OF THE SAMUEL BRONFMAN FOUNDATION *(Type A awards).* — Eight Type A awards of $1,000 are given annually by this foundation to first or qualifying year students enrolled in a Master's degree program. Eligibility is limited to Canadian citizens. Applicants for first year fellowships may apply directly to: Professor J. P. Sallenave, Awards Chairman,

Canadian Association of Administrative Sciences, Faculty of Administration, Sherbrooke University, Sherbrooke, Quebec. Completed applications must be received before May 1st.

TRANSPORTATION DEVELOPMENT AGENCY FELLOWSHIPS. — The Transportation Development Agency plans to award fellowships for postgraduate study in any discipline related to transportation leading to an advanced degree for which there is a thesis requirement.

Eligibility: Canadian citizens or landed immigrants.

Value (12 months) Master's level: *$3,600;* Doctoral level: *$4,500.* A supplementary grant of $1,000 will be made to successful applicants with one or more dependent children. In addition, a travel allowance from normal place of residence to place of study will be paid.

Tenure: Awards are tenable at any Canadian university, but in special circumstances, may be approved for tenure outside Canada.

Applications: Forms may be obtained from the Faculty of Graduate Studies at individual universities or directly from the Transportation Development Agency, Fellowship Awards, 2085 Union St., Montreal 111, Quebec.

Deadlines: Completed applications must be forwarded through the Faculty Chairman and postmarked no later than February 16.

GOVERNMENT OF QUEBEC GRADUATE SCHOLARSHIPS. — Competitions are open only to Canadian citizens and to those who may certify that they are landed immigrants and that they have been residing in Quebec for one year at the time of their application for a grant.

Type 2A — Graduate Scholarships. Valued up to $4,000 for married students and up to $3,000 for single students. Open to all fields of study but applicants must hold a Bachelor's degree or first university degree. Apply to the Student Aid Office, F. Cyril James (Administration) Building, McGill University, before January 15. Completed application forms must be received by Student Aid Office no later than January 31.

Type 2B — M.B.A. Scholarships (Jeunes Administrateurs). 50 scholarships available, valued at up to $6,000 for single students and up to $8,000 for married students tenable for a period of 12 months. Applicant must hold a first university degree with two years of full-time experience in Quebec in some executive capacity in the field of industry, commerce or business or possess training or experience recognized as equivalent. Apply to the Student Aid Office, F. Cyril James (Administration) Building, McGill University, before January 15. Completed application forms must be returned to the Student Aid Office no later than January 31.

COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN. — The Canadian scholarship awards under this plan provide assistance for students from other Commonwealth countries to study in Canada. Graduate awards are usually made for two academic years and the intervening summer. They include return transportation to Canada, fees, allowances for living expenses and books, and some expenses for travelling in Canada for study purposes. Apply to your own government for further information and sponsorship.

DEVELOPING COUNTRIES' PROGRAMS. — Students from developing areas should apply to their own Departments of Education to see whether their governments will recommend them for Colombo Plan Scholarships, Special Commonwealth Africa Aid Programs, etc.

GOVERNMENTS OF OTHER COUNTRIES. — Students from other countries should inquire concerning the availability of financial assistance from their own governments or universities.

FRANCE-QUEBEC SCHOLARSHIPS. — For information and application forms, contact your Canadian Embassy.

ONTARIO GOVERNMENT LOANS AND GRANTS.
Value: loans up to $600; grant varies. Applicants must have legal residence and domicile in Ontario for at least 12 months prior to their application for a loan or grant.
Application forms available from: The Student Aid Office, F. Cyril James (Administration) Building, McGill University, P.O. Box 6070, Montreal 101, Quebec. For information on Province of Ontario awards, contact the Department of Education, Toronto, Ontario.

CANADIAN GOVERNMENT AWARDS, LOANS AND GRANTS. — For information on the above, contact your Department of Education in the capital of your province.

UNITED STATES AWARDS, LOANS AND GRANTS. — For information on the above, contact your local bank branch.

Note: For further information on awards through governmental sources, write to The Queen's Printer and Controller of Stationery, Ottawa, for a copy of Awards for Graduate Study and Research (latest edition). This book is published by Statistics Canada, Education Division, Higher Education Section.

5.2.3 FINANCIAL ASSISTANCE OBTAINABLE THROUGH OUTSIDE SOURCES

AMERICAN WATER WORKS ASSOCIATION. — Prizes for graduate theses on water supply subjects. Any master's or doctoral thesis or dissertation, in any area of study from agriculture to zoology, including engineering, economics, business and public administration and the social sciences is eligible for the competition. The judging committee will determine whether the subject matter is of significant value to the public water supply field. *Value:* First prize — U.S. $500; second prize — U.S. $250.
Further information from: Prize Committee, American Water Works Association, 2 Park Avenue, New York, N.Y. 10016, U.S.A.

KENNECOTT COPPER CORPORATION GRADUATE FELLOWSHIPS.
Subjects: Mineral science, mining and metallurgical engineering, business administration and allied fields.
No. Offered: 16 Fellowships annually.
Value: U.S. $2,500 to the Fellow, and a grant of U.S. $2,000 to the institution concerned. Tenable at approved institutions in the United States, Canada or Australia.
Eligibilty: Open to outstanding graduate students who wish to study for an advanced degree in a relevant field.
Note: While it is hoped that a considerable number of Fellows will eventually join the staff of the Corporatioh or a subsidiary company, the Fellowships are granted without obligation, either on the part of the Fellow or of the Corporation.
Closing Date: May 15.
Address for current information: Kennecott Copper Corporation, 161 East 42nd Street, New York, N.Y. 10017, U.S.A.

CANADIAN FEDERATION OF UNIVERSITY WOMEN JUNIOR FELLOWSHIP.
Field of Study: Unrestricted.
Value: $2,500.
Number of Fellowships: 1.
Duration: 1 academic year.
Conditions: This Fellowship is open to any woman holding a Bachelor's degree or equivalent from a Canadian university, who wishes to embark on a course for the master's degree or equivalent and whose domicile is in Canada.
Where Tenable; Unrestricted.
Apply: Miss Gladys R. Munnings, Chairman Fellowships Committee, Canadian Federation of University Women, 14 Hirondelle Place, Don Mills, Ontario, before February 1 of the year prior to the date on which the award would be taken up.

THE TORONTO BUSINESS AND PROFESSIONAL WOMEN'S CLUB BURSARY.

Field of Study: Unrestricted.
Value: $750 per annum.
Duration: 1 year.
Conditions: Open to an experienced business or professional woman in Ontario who shows merit and promise, needs financial assistance and who can be accepted in any accredited Canadian university or training school (or counterpart outside Canada if course not available in Canada) with a view to obtaining a recognized degree or diploma.
Where Tenable: Unrestricted.
Apply: Bursary Chairman, The Toronto Business and Professional Women's Club, Box 185, Station F. Toronto 5, Ontario. Completed applications must be received by April 2.

GOVERNMENT OF CANADA: EXTERNAL AID OFFICE – TECHNICAL ASSISTANCE FELLOWSHIPS AND SCHOLARSHIPS.

Field of Study: Determined through bilateral negotiations; in particular, those making a direct contribution to social and economic development.
Value: Return transportation, tuition fees, living, outfit and other allowances adequate for a student to follow prescribed course of training.
Number: Dependent on the agreements with nominating governments.
Duration: Determined for each Individual award.
Conditions. Available to nationals of Asian countries participating in the Colombo Plan, nationals of Commonwealth countries in the Caribbean area, Africa, and elsewhere, and nationals of French-speaking African states. Levels of study or training: vocational, technical, undergraduate, graduate, postgraduate and practical; candidates must be nominated by their own governments.
Where Tenable: At institutions of higher education in Canada.
Apply: Relevant government department in candidate's country.

NATIONAL COUNCIL OF JEWISH WOMEN OF CANADA – IRENE SAMUEL SCHOLARSHIPS.

Field of Study: Any undergraduate course leading to a degree or post-graduate course in field where applicant has demonstrated outstanding ability.
Value: Up to $1,000 per year per student if not living at home or tuition fee if living at home.
Number: Variable.
Duration: One year with the possibility of reapplication in following year.
Conditions: Available to young Jewish women anywhere in Canada who have demonstrated leadership ability in their community (youth group activities, organizational-community work).
Where Tenable: At any recognized Canadian institution of higher education.
Apply: National Council of Jewish Women of Canada, 4700 Bathurst Street, Willowdale, Ontario, by May 1.

THE CANADIAN CONSUMER LOAN ASSOCIATION AND THE FEDERATED COUNCIL OF SALES FINANCE COMPANIES – POSTGRADUATE AWARDS.

Field of Study: Master's and Ph.D. degree: Empirical studies in Consumer Credit in Canada. No restrictions as to faculty.
Value: No rigid policy. Generally, however, the following maximums would apply: Faculty members: $1,000; Doctoral students: $750; Master's students; $500.
Number: Awards will be made up to an aggregate amount of $7,000 annually.
Duration: One year subject to renewal.
Conditions: Offered to faculty members of Canadian universities, to Canadian doctoral or master's candidates. Acceptability is based on a university-approved comprehensive outline of study.
Where Tenable: Any recognized university.
Apply: Professor W. R. Waters, School of Business, University of Toronto, Toronto, Ontario. Awards will be announced January 31, April 30 and November 15. Applications should be submitted no later than three weeks prior to one of these dates.

THE CANADIAN INSTITUTE OF CHARTERED ACCOUNTANTS, GRADUATE FELLOWSHIPS AND RESEARCH GRANTS.

Field of Study: The objectives are to encourage the continuing improvement of accounting knowledge and to assist basic research in areas served by the accounting profession.
Value: Maximum of $2,500 each.
Number: Not specified. (5 graduate fellowships were awarded in 1967.)
Duration: One year; renewable in some cases for a second year.
Conditions: Fellowships will be available to Canadian chartered accountants now teaching at a Canadian university or institute of technology, who are candidates for a graduate degree in business; or to chartered accountants who are candidates for a graduate degree beyond a first master's degree and who are studying with a view to a teaching career in Canada. Research grants are available to Canadian chartered accountants to enable them to carry out research in accounting, auditing, taxation, or other areas of importance to the accounting profession. A graduate fellowship or research grant may be held simultaneously with another scholarship, fellowship or similar award.
Where Tenable: At any university.
Apply: The Director of Research, The Canadian Institute of Chartered Accountants, Chartered Accountants Building, 250 Bloor Street East, Toronto 5, before February 28.
Awarding Agency: The Canadian Institute of Chartered Accountants.

MELCHERS FOUNDATION AWARD.

Value: Up to $500.
Number: Not specified.
Apply by letter to: Mr. Pierre St. Laurent, Director, Melchers Foundation, Melchers Distilleries, Place Bonaventure, 18 Fundy, Montreal 114, Quebec.

5.3 RESEARCH

The vitality of a university faculty is reflected in the quality and quantity of its research – the pursuit of new and relevant forms of knowledge. In the McGill Faculty of Management, research serves an important function in the activity of both faculty and students. Research adds to our knowledge of management, and it instills in the student the desire and ability to learn systematically about the managerial environment in which he will spend his working life.

Management research is challenging and stimulating. It tends to be interdisciplinary, providing an opportunity for people with different backgrounds to work together; it embraces underlying disciplines such as psychology, mathematics, and economics; and as in all of the social sciences, it involves complex problems of conceptualization and measurement.

The following are examples of on-going research projects at the McGill Faculty of Management.

5.3.1 TYPICAL FACULTY PROJECTS

1. The problems of financial reporting
2. Length-of-stay distributions of hospitalized psychiatric patients
3. The effects of automation on employment
4. The use of computer terminals in management education
5. Analysis of the strategy-making process in organizations
6. The study of optimal organizational designs

5.3.2 TYPICAL M.B.A. RESEARCH PAPERS

1. Capital budgeting and corporate planning
2. A university administrator's financial decision game
3. Foreign investment in Quebec
4. Simulation of a supermarket
5. A programmed view of managerial work
6. Legal aspects of marketing in Canada

5.4 ASSOCIATED OPERATIONS

5.4.1 THE MANAGEMENT INSTITUTE

The Management Institute, an ancillary operation of the Faculty of Management, implements the Faculty's policies regarding continuing education for business. Courses or seminars offered by the Institute range from three days to two weeks in length and cover a wide number of functional areas. They are specifically designed to help middle and senior management people keep abreast of current developments in analytical and decision-making techniques, and to provide executives with a better appreciation of the integrative problems of general management.

Lecturers and seminar leaders, recognized authorities in their fields, are drawn from the Faculty of Management at McGill and from other universities in North America. All courses or seminars are held on university premises. They are restricted as to the number of participants in order to ensure full discussion and individual attention.

The Institute is under the directorship of Professor R. N. Morrison.

5.4.2 THE FINANCIAL RESEARCH INSTITUTE

McGill's graduate students have access through the Financial Research Institute to one of the largest financial, price and economics data banks in the world. The Institute began as a joint university-business community organization and was established through the initiative of the then Graduate School of Business at McGill.

The purpose of the Institute is to foster knowledge and understanding of all quantitive aspects of financial and economic analysis related to the selection of securities and the management of financial portfolios. The Institute now serves members or clients in Winnipeg, Toronto, Ottawa, Montreal, and other cities.

Because of the continued close ties maintained between the Institute and the Faculty, staff and students are able to use these resources for research in economics and finance, free of charge.

5.5 STUDENTS' ACTIVITIES

The many student-run clubs, groups, societies, and other activities at McGill run the gamut from conferences on provincial and international affairs, to sky-diving, chess competitions, films and theatre, debates, and a winter carnival. The Student Handbook, issued by the Students' Society, contains details of these activities as well as other useful facts and figures.

All students registered in the University are members of the Students' Society. Headquarters are the University Centre, a modern four-storey building, with cafeterias, a ballroom, meeting rooms and offices, lounges, and an experimental theatre.

The Post-Graduate Students' Society operates semi-autonomously within the Students' Society. The P.G.S.S. has its own centre, Thomson House, with offices and meeting rooms, and, for relaxation, an eating area and a bar, as well as other rooms for reading, games, music, recreation and dancing. During the academic year, the Society

publishes the McGill Martlet, a tabloid newspaper, and arranges a number of cultural, recreational, political, and educational events. Its intramural athletic program operates throughout the academic year and the summer session. It issues a handbook at registration containing information designed to solve many of your potential problems before they occur. Copies can be had in advance by writing to the P.G.S.S. at Thomson House, 3650 McTavish Street, Montreal 112, Quebec.

The McGill Dames Society is a social outlet for wives of graduate students. It has accumulated some very useful information of help to newcomers in finding accommodation and employment.

5.6 STUDENT SERVICES

5.6.1 ATHLETIC FACILITIES

The University offers many facilities for athletic participation and instruction to provide you with the opportunity to balance the rigorous study programs you will be undertaking.

The Sir Arthur Currie Memorial Gymnasium has basketball and squash courts, a 42′ x 75′ swimming pool, badminton courts, volleyball courts, and facilities for floor hockey, gymnastics, wrestling, fencing, weight-training, track and judo. The McGill Winter Stadium artificial ice rink is in demand for hockey games, and competitive as well as recreational skating. In Macdonald Park on the side of Mount Royal, the Percival Molson Stadium with a full-sized football field encircled by a 440-yard cinder track, seats 20,000 people. Beside it, also in the Park, are another full-sized football field, a multi-purpose recreational area, and four hard-surface tennis courts.

The University fields teams in 16 intercollegiate sports.

Your Student Identity Card entitles you to use all facilities and admits you to most home competition free of charge.

5.6.2 UNIVERSITY BOOKSTORE

The University has its own bookstore on the main floor of the new Samuel Bronfman Building. It carries a complete stock of textbooks for all courses, and other materials and supplies. Individual items not ordinarily carried can be specially ordered at your request.

5.6.3 HEALTH SERVICE

A compulsory medical examination and X-ray are standard for all new McGill students.

The Student Health Service provides these and, in addition, is available day and night to provide treatment for any minor illnesses, accidents, and emergencies, and professional help for those in emotional or psychological difficulties. If you become seriously ill, the Health Service will refer you to the public service of one of Montreal's excellent hospitals or to a doctor of your choice.

(Note to non-Canadian students: The Province of Quebec does not provide insurance for medical purposes to immigrant students and the University has instituted for your protection a compulsory health insurance plan, at a cost to you of $65.00 per year, payable at registration. Landed immigrants who have not completed three months in Canada at the time of registration must pay $26.00.)

5.6.4 HOUSING AND FOOD

McGill is in the heart of the city of Montreal and there are a variety of private rooming houses and apartment buildings which you may wish to consider on arrival. However, if you are interested in University accommodation, the following information may help you to decide.

McGill has four residences in Macdonald Park on the side of Mount Royal overlooking the city. They are named Douglas, Gardner, Molson, and McConnell Halls, after University benefactors. Accommodation in the Douglas Hall is for 134 students, taking the form of self-contained suites of three study-bedrooms and one shared sitting room. Douglas Hall has its own dining room, library common room, and recreation rooms. McConnell, Molson, and Gardner Halls together house 645 students in single rooms. Each Hall has its own common room, library, and recreation room. In this instance, the three buildings surround a central catering and dining facility, Bishop Mountain Hall. If you wish to live in residence, apply to the Secretary, Douglas Hall, 3851 University Street, when you make your application for admittance.

If you are married, you may request accommodation in one of the apartment buildings especially acquired by the University for married students. The Real Estate Manager, 5 th. Floor, F. Cyril James (Administration) Building, P.O. Box 6070, Montreal 101, Que., arranges these tenancies.

5.6.5 PLACEMENT

The Canada Manpower Centre has one of its offices on the McGill campus and assists the student in seeking permanent employment upon graduation and thereafter throughout his career. The Centre is in contact with organizations from all over Canada and the United States and arranges scheduled interviews with interested companies on campus as well as on company premises. Its activities result in a continuing flow of excellent job opportunities being brought to your attention.

As an additional service, it will help you in finding summer employment or part-time work during the session.

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McGill University

FACULTY OF MEDICINE

1973-74

3655 Drummond Street
Montreal 109, Quebec, Canada*
Telephone (514) 392-4229

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*The official McGill mailing address is:
McGill University,
P.O. Box 6070, Montreal 101, Quebec, Canada

1 STAFF

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MAURICE McGREGOR, M.B., B.Ch., M.D. (Rand), F.R.C.P. (London), F.R.C.P. (C) — *Vice-Principal (Health Care)*

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J. H. HOLTON, B.Com. (Tor.) — *Secretary of the Board of Governors*

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MISS INGELISE GRONVOLD, B.A. — *Administrative Assistant to the Faculty*

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Lecturers — W. DION, S. NOMMIK, E. WOOD

Demonstrator — C. SHAW

NEUROLOGY AND NEUROSURGERY

Professor of Neurology & Neurosurgery — WILLIAM FEINDEL *(Chairman)*

Professors, Neurology — D. W. BAXTER, FRANCIS McNAUGHTON, PRESTON ROBB

Professors, Neurosurgery — G. BERTRAND, T. RASMUSSEN, J. G. STRATFORD

Professor, Anaesthesia — R. G. B. GILBERT

Professor, Clinical Neurophysiology — P. GLOOR

Professor, Clinical Psychology — B. MILNER

Professor, Neurochemistry — L. WOLFE

Associate Professors, Neurology — A. AGUAYO, F. ANDERMANN, J. B. R. COSGROVE, I. HELLER, A. SHERWIN, G. WATTERS

MEDICINE

Associate Professor, Neurosurgery — J. BLUNDELL
Associate Professor, Neurochemistry — H. PAPPIUS
Associate Professor, Neurological Radiology — R. ETHIER
Associate Professors, Neuropathology — S. CARPENTER, G. MATHIESON
Associate Professor, Anaesthesia — D. TROP
Associate Professor, Neuroanatomy — D. LAWRENCE
Assistant Professors, Neurology — G. BRAY, A. EISEN, M. FINLAYSON, B. GRAHAM, G. KARPATI, I. LIBMAN, J. B. MARTIN, W. F. T. TATLOW, J. WOODS
Assistant Professors, Neurosurgery — C. J. DILA, R. FORD, R. HANSEBOUT, A. OLIVIER
Assistant Professor, Neuroanatomy — A. MORTON
Assistant Professor, Neurological Radiology — D. MELANCON
Assistant Professors, Anaesthesia — G. COSSETTE, E. WILKINSON
Assistant Professor, Neurosurgical Research — Y. L. YAMAMOTO
Assistant Professor, Clinical Neurophysiology — K. METRAKOS
Lecturers, Neuroelectronics — J. R. IVES, C. THOMPSON
Lecturer, Neurophysiology — S. PRELEVIC
Lecturers, Clinical Psychology — L. TAYLOR, C. STRAUSS
Lecturers, Neurology — W. OLANOW, A. M. SCHWARTZ
Lecturer, Neurosurgery — R. HOLLENBERG
Lecturer, Neurological Radiology — G. BELANGER

OBSTETRICS & GYNAECOLOGY

Professors — G. B. MAUGHAN *(Chairman)*, R. A. H. KINCH, J. P. A. LATOUR
Associate Professors — MYER HENDELMAN, J. L. MACARTHUR, H. OXORN, T. PRIMROSE, F. J. TWEEDIE, R. H. USHER, M. H. V. YOUNG
Assistant Professors — G. H. ARRONET, P.R. BLAHEY, H. B. BOURNE, T. B. CATTERILL, P. D. DESJARDINS, J. R. DODDS, M. M. GELFAND, S. GOLD, E. A. MacCALLUM, C. NUCCI, R. M. PARSONS, T. N. ROMAN, M. SABIN, R. J. SEYMOUR
Lecturers — R. H. AIKMAN, A. F. ASSWAD, N. J. BUKA, J. E. COFFEY, A. deLEON-LAURENZA, W. D. FRASER, P. G. GILLETT, G. HABER, C. C. LINDSAY, D. R. POPKIN, R. M. H. POWER, Jr., L. D. RHEA, L. P. SMITH, J. STOCKER, A. TOTH, E. C. TUCKER

OPHTHALMOLOGY

Professors — S. T. ADAMS *(Chairman)*, S. LERMAN, J. C. LOCKE
Associate Professors — S. B. MURPHY, WILLIAM TURNBULL
Assistant Professors — P. L. DAVIS, L. S. S. KIRSCHBERG, R. P. LeBLANC, A. B. LEITH, J. M. LITTLE, D. W. C. LORENZETTI, R. B. RAMSEY, PETER ROSENBAUM, H. L. TANENBAUM
Lecturers — S. BROWNSTEIN, P. DAWSON, H. A. G. DUNCAN, J. A. FOREMAN, E. GORDON, M. KHALIL, R. W. PEARMAN, N. SAHEB, K. E. SCHIRMER

OTOLARYNGOLOGY

Professors — J. D. BAXTER *(Chairman)*, D. G. DOEHRING
Associate Professors — D. LING, R. H. McCOY, E. J. SMITH
Assistant Professors — B. BARTHOLOMEUS, K. K. CHARAN, C. E. FANKHAUSER, A. GROSSMAN, C. A. LASZLO, M. MENDELSOHN, D. MOSCOVITCH, W. H. NOVICK, J. S. OUTERBRIDGE, G. SHIMO
Lecturers — E. ATTIA, A. COHEN, M. N. LEVITT, R. M. McMILLAN
Demonstrator — R. LAFLEUR

PAEDIATRICS

Professors — M. E. AVERY *(Chairman)*, R. L. DENTON, K. DRUMMOND, C. R. SCRIVER

Associate Professors — P. BEAUDRY, M. BELMONTE, E. COLLE, N. R. EADE, F. C. FRASER, J. GIBBONS, C. GIROUD, D. A. HILLMAN, E. HILLMAN, A. NEIMS, S. PEDVIS, L. STERN, R. USHER, G. WATTERS, E. M. WORDEN

Assistant Professors —F. ANDERMAN, P. BENJAMIN, H. BRICKMAN, H. BRODIE, J. CHARTERS, D. CLOGG, G. COLLINS, M. COREY, A. COWAN, A. H. EISEN, P. FITZHARDINGE, F. GLORIEUX, H. GOLDMAN, H. GUYDA, E. HARPUR, G. KARPATI, M. MARKS, K. METRAKOS, J. NEAL, J. H. NICKERSON, J. H. O'NEILL, E. OUTERBRIDGE, L. PINSKY, R. SHAPERA, A. STACHEWITSCH, N. STEINMETZ, H. STRAWCZYNSKI, H. SURCHIN, H. W. TAEUSCH, R. WILLIAMS, M. WISE

Lecturers — W. J. ALEXANDER, J. AYOUB, L. CHEVALIER, J. CHIU, B. COSTOM, M. CHERNIAK, E. DELVIN, C. DUPONT, J. H. ELDER, A. FELDMAN, B. FLETCHER, C. FORBES, P. FORBES, Z. R. FOX, R. GOLD, V. GOLDBLOOM, C. GRANDBOIS, J. GULYAS, M. HUNTER, T. HUBSCHER, P. JUNGER, H. KAHNE, J. L. LEBLANC, C. LEJTENYI, SOOK LEE, B. MOROZ, F. MOHYUDDIN, B. NOGRADY, S. ROTHMAN, T. ROUSSEAU, I. TESSLER, W. W. TIDMARSH, D. WILLIS, W. WOELBER, I. WRIGHT, A. ZELIGER

Demonstrators — J. BELLEY, U. CALLEGARINI, A. CHAN-YIP, A. GORDON, S. GUTTMAN, G. HEWITSON, J. H. JONCAS, J. KITEALA, A. KOVACS-BIMBI, G. H. LUPU, B. MANDEL, A. J. MARKUS, D. McCRIMMON, P. NEUMANN, J. P. POIRIER, E. RABINOVITCH, S. ROCHMAN, P. SENECAL, R. ROSENFELD, C. WANG, F. WIENER, F. WISEMAN, H. O. YOUNG

PATHOLOGY

Professors — ROBERT H. MORE *(Chairman)*, R. BOLANDE, W. P. DUGUID, S. N. HUANG, D. S. KAHN, G. RONA, H. SHELDON, W. M. THURLBECK, G. TREMBLAY, F. W. WIGLESWORTH

Associate Professors —S. CARPENTER, J. HOGG, E. HOSEIN, J. P. A. LATOUR, K. G. MARSHALL, G. MATHIESON, D. MURRAY, W. J. PIROZYNSKI, M. REESAL

Assistant Professors — M. N. AHMED, G. BERRY, M. H. FINLAYSON, W. HAUSER, W. S. HWANG, M. E. KIRK, J. KNAACK, J. R. C. LACHANCE, J. O. LOUGH, MOINUDDIN, D. R. MURPHY, J. B. RICHARDSON, P. SCHOPFLOCHER, T. SEEMAYER, W. THELMO, N. S. WANG, J. L. WEBB, B. I. WEIGENSBERG

Lecturers — J. BELAND, D. BISHOP, P. BOLDUC, M. L. deCHAMPLAIN, J. EMOND, F. GOMES, I. KERNER, M. B. MACKENZIE, L. A. OLIVA, J. VILORIA, B. M. WOLANSKYJ

Demonstrators — B. ARTINIAN, B. MANASC

PHARMACOLOGY

Professors — M. NICKERSON *(Chairman)*, J. LOWENTHAL

Associate Professors — B. G. BENFEY, N. EADE, L. E. FRANCIS, J. R. RUEDY, D. R. VARMA

Assistant Professors — R. CAPEK, L. CHUNG, B. COLLIER, B. ESPLIN, G. KATO, E. KOVACS, A. H. NEIMS, R. I. OGILVIE, R. E. RANGNO, J. B. RICHARDSON, M. C. ROBERTSON, B. I. SASYNIUK, A. M. TENENHOUSE, J. M. TRIFARO, M. S. YONG

Lecturers — R. A. DAVIES, F. HERR

PHYSIOLOGY

Professors — J. MILIC-EMILI *(Chairman)*, R. I. BIRKS, T. M. S. CHANG, F. C. MacINTOSH, G. MELVILL JONES, K. KRNJEVIC

Associate Professors — J. H. DIRKS, D. R. FIRTH, C. POLOSA, P. SEKELJ

Assistant Professors — M. W. COHEN, R. F. P. CRONIN, M. M. FROJMOVIC, P. GOLD, V. KLISSOURAS, W. S. LAPP, M. LEVY, M. C. MACKEY, G. MANDL, J. OUTERBRIDGE, A. WECHSLER, R. L. WILLIAMS

MEDICINE

Associated Members — M. E. AVERY *(Paediatrics)*, B. A. COOPER *(Medicine)*, B. DUBROVSKY *(Psychiatry)*, P. GLOOR *(Neurology)*, H. L. GOLDSMITH *(Medicine)*, C. A. GORESKY *(Medicine)*, E. J. HINCHEY *(Surgery)*, P. T. MACKLEM *(Medicine)*, L. D. McLEAN *(Surgery)*, M. McKENZIE *(Medicine)*

PSYCHIATRY

Professors — H. E. LEHMANN *(Chairman)*, M. K. BIRMINGHAM, H. CAPLAN, M. DONGIER, H. KRAVITZ, A. W. MacLEOD, R. B. MALMO, A. M. MANN, H. B. M. MURPHY, T. L. SOURKES

Associate Professors — J. AUFREITER, F. AZIMA, T. A. BAN, B. M. CORMIER, J. A. CORSON, I. S. DISHER, P. G. EDGELL, B. A. GIBBARD, B. GRAD, L. GRATTON, L. G. HISEY, V. A. KRAL, E. P. LESTER, J. G. LOHRENZ, F. W. LUNDELL, D. J. McCLURE, J. NAIMAN, E. G. POSER, R. H. PRINCE, A. E. SCHWARTZMAN, J. J. SIGAL, J. R. UNWIN, H. WARNES, G. WEISS

Assistant Professors — K. S. ADAM, N. R. ALDOUS, M. M. AMIN, J. V. ANANTHARAMAIAH, C. C. J. ANGLIKER, G. AUFREITER, H. A. AZIM, S. BARZA, J. BEAUBIEN, P. R. BECK, C. BOS, C. CAHILL, C. H. CAHN, J. CUMBERLAND, H. DAVANLOO, S. DONGIER-MONTAGNAC, B. DUBROVSKY, S. Z. DUDEK, W. D. ENGELS, F. ENGELSMANN, R. B. FELDMAN, H. GRAUER, B. R. HUNT, A. P. N. LEE, J. W. LELLA, R. E. LEMON, D. C. LEVIN, E. D. LEVINSON, J. G. MAGUIRE, K. K. MINDE, G. F. MORGENSTERN, H. F. MULLER, J. C. NEGRETE, Y. NERMAN, G. PETERFY, D. PIVNICKI, M. S. RABINOVITCH, R. A. RAMSAY, D. SILVER, C. C. SMITH, L. SOLYOM, S. STEIN, G. C. TAYLOR, G. TURCOT, L. VACAFLOR, S. WILNER, N. WISEBORD, C. YUNG

Lecturers — E. H. ACHONG, R. ARBITMAN, H. AST, A. BARTOVA, C. BENIERAKIS, S. BIKADOROFF, S. CAMPBELL, A. J. CARRE, C. COHEN, E. G. DEBBANE, H. A. EVANS, F. FENTON, H. GUTTMANN, G. P. HARNOIS, R. KACHANOFF, T. KOLIVAKIS, I. KRAULIS, F. E. KRISTOF, S. LAL, G. LAROCHELLE, J. LEVY, H. P. MALMO, A. F. MESZAROS, A. K. MULLER, N. P. NAIR, E. NALTCHAYAN, C. NOVELLA, J. M. PAIEMENT, E. J. PINTER, P. D. L. ROPER, I. REBNER, E. ROSKIES, J. RUIZ-NAVARRO, P. D. SCULLY, S. P. SIMONS, R. M. SMITH, L. G. STERN, A. A. SURKIS, D. J. WOOD

Demonstrators — K. ARVANITAKIS, C. BARRIGA, S. BAYRAKAL, S. BENAROYA, L. M. BUFFETT, P. B. CAMPBELL, J. CANFIELD, M. CERROLAZA, H. CVEJIC, P. DIEZ-GARCIA, H. FREEDMAN, S. C. GAITE, J. P. GAMACHE, L. GOMEZ-ANGEL, G. GREGORIOU, L. HUAPAYA, L. GUERETTE, R. A. KELLER, N. KIRIAKIDIS, S. A. MARTIN, K. MISSALA, J. PARIS, B. M. ROBERTSON, M. ROMER, G. M. ROSENBERG, M. SALIB, A. M. SCHWARTZ, R. W. SHEPHERD, C. TAHTA

Associated Member

Professor — L. J. POIRIER

DIAGNOSTIC RADIOLOGY

Professor — R. G. FRASER *(Chairman)*

Associate Professors — W. J. ALEXANDER, W. P. BUTT, R. ETHIER, R. S. HARRIS, R. O. HILL, M. B. NOGRADY, M. J. PALAYEW, L. ROSENTHALL, I. SEDLEZKY, G. B. SKINNER, F. WINSBERG

Assistant Professors — R. A. BEIQUE, C. M. COLE, P. A. FARRER, P. J. FITZGERALD, B. D. FLETCHER, J. H. GAGNON, F. A. GRAINGER, B. B. HALE, N. A. KHAN, D. MELANCON, A. D. ROTENBERG, G. SAHA, V. SAYEGH, R. E. WILSON

Lecturers — F. M. BOSTON, J. D. CHAN, J.-M. DUMAS, J. D. GIBSON, A. GLAY, M. GOLDENBERG, M. J. HERBA, R. L'ESPERANCE, A. LISBONA, J. LUSSIER-LAZAROFF, A. NAIMARK, M. O'DONOVAN, H. PATRIQUIN, J. SYLVESTRE, J. TOTH, M. USHER, R. L. WEE, G. WHITEMAN

Demonstrators — A. ARZOUMANIAN, A. K. BANERJEE, G. BELANGER, A. D. FRENCH, R. E. HANSON, R. S. HIDVEGI, B. B. HYAMS, R. KIMOFF, P. LANDER, W. LIGHT, M. S. NATHENS, A. M. O'GORMAN, M. F. PINSKY, M. ROSENBLOOM, I. N. SHUSTER, F. TREMBLAY

Associated Scientist — J. C. HOGG

THERAPEUTIC RADIOLOGY

Assistant Professors — P. A. FARRER, J. J. HAZEL *(Acting Chairman)*, T. N. ROMAN
Lecturers — G. DOYLE, C. GRAVELINE

SURGERY

Professors — L. D. MacLEAN *(Chairman)*, D. R. MURPHY, A. G. THOMPSON, F. M. WOOLHOUSE

Associate Professors — H. E. BEARDMORE, M. A. ENTIN, R. D. GUTTMAN, L. G. HAMPSON, E. J. HINCHEY, G. M. KARN, R. C. LONG, A. P. H. McLEAN, E. D. MONAGHAN, W. L. OGILVY, H. F. OWEN, J. D. PALMER, I. SHRAGOVITCH, E. J. TABAH, H. B. WILLIAMS

Assistant Professors — J. G. BEAUDOIN, N. S. BELLIVEAU, H. C. BROWN, R. A. BROWN, A. C. DERBY, J. C. DICKISON, R. L. ESTRADA, H. HIMAL, A. HRENO, R. N. LAWSON, G. M. LEHMAN, D. T. W. LIN, R. G. MARGOLESE, R. MIDGLEY, J. H. MOORE, P. NILOFF, D. W. RUDDICK, N. M. SHEINER, H. R. SHIBATA, H. SHIZGAL, H. H. SIGMAN

Lecturers — C. M. ALLAN, M. S. CHUGHTAI, A. N. FREEDMAN, R. G. W. GOODALL, F. GUTTMAN, W. C. LLOYD-SMITH, J. K. MacFARLANE, B. MARIEN, K. G. McCULLOCH, R. V. MORALEJO, H. RABINOVITCH, G. SCHWARZ, M. WEXLER, F. M. WIEGAND

Demonstrators — L. J. GENENDER, P. MADORE, C. J. PEARL, A. S. POPIERAITIS, M. A. ROSMAN, H. D. STEVENS

Associated Members

Professors — F. N. GURD, H. R. ROBERTSON

Division of Cardiovascular and Thoracic Surgery

Professors — A. R. C. DOBELL *(Director)*, H. J. SCOTT
Associate Professors — D. D. MUNRO, D. A. MURPHY
Assistant Professors — P. E. BLUNDELL, C. J. CHIU, J. MORIN, D. S. MULDER
Lecturer — J. A. S. WILSON

Division of Surgical Research

Professors — L. D. MacLEAN *(Director)*, D. R. MURPHY
Associate Professors — D. M. EDWARD, J. GORDON, S. C. SKORYNA
Assistant Professors — H. HIMAL, C. A. LAURIN, A. M. McARDLE, S. PITZELE, J. RIVILIS, Y. TANAKA
Lecturers — A. M. DANIEL, L. GREENBERG

Division of Orthopaedic Surgery

Professor — R. L. CRUESS
Associate Professors — J. M. McINTYRE, J. E. MILLER, N. MITCHELL
Assistant Professors — I. S. BITENC, C. E. BROOKS, R. B. GLEDHILL, E. C. PERCY, R. G. TOWNSEND, C. L. WILSON, W. E. WILSON
Lecturers — A. A. BUTLER, J. DUMONT, H. F. FARFAN, D. R. FORBES, F. A. H. GREENWOOD, J. L. SHUGAR, J. TEMPLETON
Demonstrators — D. S. DRUMMOND, G. P. MURPHY, T. N. SILLER

Division of Urology

Professor — K. J. MacKINNON
Associate Professor — E. C. REID
Assistant Professors — C. F. D. ACKMAN, J. W. FOOTE, M. LAPLANTE, D. D. MOREHOUSE, B. M. M. MOUNT, J. OH, J. A. OLIVER, Y. TAGUCHI
Lecturers — I. J. de DOMINICO, J. GREISMAN, S. A. JACOBSON, W. F. LINGARD, S. G. MacISAAC, H. H. RABINOVITCH
Demonstrators — N. HALPERN, T. NEARING

2 GENERAL INFORMATION

The one hundred and forty-first session of the Faculty will open on September 5, 1973 for students of the first three years.

Separate Announcements are available for the School of Physical and Occupational Therapy, and the School of Nursing.

Details of scholarships, bursaries, prizes, medals, and loan funds are given in the *Scholarships Announcement,* which may be obtained from the Registrar's Office.

Administrative offices of the Faculty of Medicine are in the McIntyre Medical Sciences Centre, 3655 Drummond Street, Montreal 109, Quebec, Canada.

2.1 BUILDINGS

2.1.1 McINTYRE MEDICAL SCIENCES CENTRE

This building contains the Offices of Administration, the Medical Library, the Osler Library of the History of Medicine, the Departments of Biochemistry, History of Medicine, Pharmacology and Physiology and a number of special research units.

2.1.2 STRATHCONA ANATOMY AND DENTISTRY BUILDING

This building contains the Department of Anatomy, the Faculty of Dentistry and certain laboratories of the Department of Experimental Medicine.

2.1.3 PATHOLOGY INSTITUTE

This building was opened for use in October 1924. The Institute is situated on the north-east corner of University Street and Pine Avenue adjacent to the Montreal Neurological Hospital and the Royal Victoria Hospital. It is occupied by the Departments of Microbiology, Immunology, Epidemiology and Health, and Pathology. The building has extensive facilities for teaching, research and diagnosis, one of which, the Meakins-Christie Laboratories, was opened in August 1972. While they are for interdisciplinary research, these laboratories come under the jurisdiction of the Department of Medicine of the Royal Victoria Hospital. They are available to any qualified investigator from any discipline who wishes to collaborate in research on respiratory problems.

2.1.4 MONTREAL NEUROLOGICAL HOSPITAL AND INSTITUTE

This eight-storey building, which is situated on University ground adjacent to the Pathology Institute and the Royal Victoria Hospital, was opened in 1934. The construction of the McConnell Wing, opened in 1953, approximately doubled both the clinical and laboratory space. With excellent equipment and facilities for research, as well as the medical and surgical treatment of disorders of the nervous system, it houses the Department of Neurology and Neurosurgery, which conducts both undergraduate and graduate teaching in the Faculty of Medicine, and the Montreal Neurological Hospital for the care of patients with organic diseases of the nervous system. In addition to wards, operating rooms, and laboratories for treatment and study of diseases of the nervous system, the building provides facilities for graduate study and research in the related fields of basic science.

2.1.5 ALLAN MEMORIAL INSTITUTE

In 1943 a large building and site were donated as a basis for the development of an Institute of Psychiatry. The building was reconstructed to permit the establishment of a fifty-bed unit, together with extensive research laboratories, and was officially opened on July 12, 1944.

In 1946 the first day hospital in the world was opened at the Institute and in 1953 a fifty-bed wing was added.

In 1963 a research and training building was added by McGill University, thus providing one of the most extensive and modern research areas.

Both undergraduate and postgraduate teaching are carried on at the Institute.

2.1.6 DONNER BUILDING

The Donner Building for Medical Research, adjacent to the Strathcona Anatomy and Dentistry Building, was completed in September 1948. Its erection was made possible through the generosity of William H. Donner of Philadelphia, the late founder of the International Cancer Research Foundation, who provided the funds necessary for the construction of a building entirely devoted to medical research. It has recently been renovated through the generous assistance of the Donner Foundation.

The building houses the Maxwell Lauterman Laboratories for Surgical Research, the Gastrointestinal Research Laboratory, and also provides facilities for many types of medical and surgical investigation.

2.2 HOSPITALS

2.2.1 McGILL UNIVERSITY TEACHING HOSPITALS

There are four McGill University Teaching Hospitals. By agreement and tradition the administration, medical staff and scientific personnel of these institutions are closely integrated with McGill University and form the basis for the clinical departments of the Faculty of Medicine. They are the following:

Royal Victoria Hospital

The Montreal General Hospital

The Montreal Children's Hospital

Montreal Neurological Hospital and Institute

The Royal Victoria Hospital comprises the following units under one administration:

1. Main Building
2. New Medical Wing
3. New Surgical Wing
4. Ross Memorial Pavilion for private patients
5. Women's Pavilion — Royal Victoria Montreal Maternity
6. Allan Memorial Institute.

The total bed complement is 1,018. Admissions total over 20,000 a year and there are more than 200,000 visits annually to the Outpatient Department. The resident and intern staff numbers 327.

The Royal Victoria Hospital was granted its Charter in 1887. The Pathological Institute and the Women's Pavilion of the Royal Victoria Hospital were opened in 1926 and the Allan Memorial Institute (psychiatry) became part of the hospital complex in 1940.

The Montreal General Hospital has a bed complement of 910 for the treatment of acute diseases. In a typical year, there are approximately 20,000 admissions and 160,000 consultations in the Outpatient Department. The resident and intern staff numbers 275.

The "Montreal General" was founded in 1821; two smaller buildings downtown had preceded it in 1816 and 1819. In age, therefore, it is not the oldest hospital in Canada, but its record in clinical teaching is one of the longest in North America.

From the time the Hospital was opened, its staff began to arrange for students and, in 1823, they opened the first Medical School in Canada, the Montreal Medical Institution, with 25 students. Teaching was carried on partly at the Hospital. It was this School which agreed to form the Faculty of Medicine of McGill University in 1829: the beginning of a long and intimate association between the Hospital and the University.

The present buildings on Cedar Avenue were occupied in 1955.

The Montreal Children's Hospital located on Tupper Street near the Atwater Metro Station has 343 beds and, in a typical year, admits 12,300 patients. The Outpatient Department has approximately 170,000 visits, 40,000 in Emergency and 130,000 in the clinics. The hospital admits newborn infants, children and adolescents with all kinds of medical and surgical problems.

An active teaching program is maintained for the medical students and for the 125 interns and residents. The McGill University-Montreal Children's Hospital Research Institute is located in the hospital, and sponsors research and postgraduate education in disciplines related to problems of childhood.

The Montreal Neurological Hospital and Institute, consisting of the hospital activities of the Montreal Neurological Institute, is situated across the street from the Royal Victoria Hospital and constitutes the Department of Neurology and Neurosurgery for this hospital. There are 135 beds, including a paediatric unit, for the care and investigation of patients with organic diseases of the nervous system. There are approximately 2,200 admissions yearly, about half to the Neurological Services and half to the Neurosurgical Services. Approximately 1,200 surgical procedures are carried out each year.

2.2.2 SPECIALTY TEACHING HOSPITALS

The following hospitals are affiliated with the McGill University Faculty of Medicine. All the departments and services of these hospitals participate in teaching and research in a single specialty:

Douglas Hospital

The Montreal Chest Hospital Center

Douglas Hospital was opened in 1890. It is a 1,400-bed psychiatric hospital for the treatment of emotional and mental diseases. There are facilities for adolescent behaviour problems and children with mental disorders. There are approximately 1,500 admissions per year and 12,000 visits to the Outpatient Clinic.

The hospital provides clinical instruction and training of medical students, nurses, nursing assistants, occupational therapists, psychologists, social workers and field work experience for postgraduate training of professional personnel. An active research program is carried on in the basic and clinical aspects of human behaviour.

The Montreal Chest Hospital Center has as its objectives the study, prevention and treatment of tuberculosis and diseases of the chest. It operates on an outpatient and inpatient basis. The Outpatient Department includes an Anti-Tuberculosis Dispensary and a Chest Clinic. The Hospital contains a 100-bed Non-Tuberculous Chest Condition Unit and a 24-bed Tuberculosis Unit. Its facilities include Operating Rooms and Laboratories and it maintains an active research program. Residency appointments number 14.

2.2.3 HOSPITALS PARTIALLY AFFILIATED WITH McGILL UNIVERSITY

The following hospitals have been approved and have contracted with McGill University for participation in teaching and research in one or more departments and services:

Catherine Booth Hospital
Jewish General Hospital
The Lakeshore General Hospital
Montreal Heart Institute
Queen Elizabeth Hospital of Montreal
Queen Mary Veterans Hospital
Reddy Memorial Hospital
St. Mary's Memorial Hospital
Shriners' Hospital for Crippled Children

2.3 LIBRARIES

2.3.1 MEDICAL LIBRARY

Medical Librarian — MR. DAVID BISHOP

The Medical Library is located on the second, third, and fourth floors of the McIntyre Medical Sciences Centre. The entrance to the library is on the third floor near the elevators. On this floor are found the Circulation Desk, the Reference Department, the catalogue, the book collection, part of the journal collection and the study rooms. The second and fourth floors hold mostly journals and additional seating space. The Library offices and support services are located on the second floor.

The Library is open during the academic session from Monday to Friday, 8:30 a.m. to midnight; Saturday 8:30 a.m. to 5 p.m.; and Sunday 1 p.m. to 5 p.m. Changes in Library hours, and especially summer hours, are posted on the door of the Library as well as on bulletin boards elsewhere in the building.

The Library is primarily for the use of medical students and faculty, and other students whose course-work requires its use. Access, however, is available to all who have need to use its collections, including members of the health professions in the community. An extensive photocopy and interlibrary loan service throughout the country is maintained. Reference services, including subject information searches through biomedical bibliographies and indexes, are offered. Literature searches by computer may also be requested, and are available locally as well as through extramural sources. Self-instructional guides are available for a number of the Library's services.

One of the strengths of the Library is its journal collection. Of the more than 130,000 items held, over 90,000 are bound volumes of journals, and approximately 2,000 titles are currently received from many countries. The book collection is particularly outstanding in the area of ophthalmology, due in large measure to gifts from the late Dr. Casey A. Wood. There are also small libraries and collections of books and journals in departments of the Faculty, totalling some 20,000 volumes in all.

2.3.2 OSLER LIBRARY OF THE HISTORY OF MEDICINE

The two-storey wing extending out from the third and fourth floors of the McIntyre Medical Sciences Building is the Osler Library, entirely devoted to the medical-historical collection. Besides library offices and stack space, the Library consists of two reading rooms, the Wellcome Camera, accessible through the Main Reading area of the Medical Library on the third floor, and the Osler Room beyond the Camera.

The collection, consisting of about 25,000 volumes in the history of medicine and its sciences, has, as a nucleus, the 8,000 volumes bequeathed to McGill by one of its most famous pupils and teachers, Sir William Osler. It is especially this portion which is rich in 15th, 16th, 17th, and 18th century medical books. In addition, all books printed before 1850 have been transferred from the Medical Library to this collection. The rest of the collection has been purchased by the Osler Library itself, especially since 1957, a generous grant from the Wellcome Trust having made active growth of the Library possible. The Library is constantly adding to the collection, especially new books on the history of all aspects of medicine and medical people.

All books in the collection are available for use within the Library and the vast majority of them are available on loan. Undergraduates and all interested persons may use the Library except as restricted by the attending Library staff. For the holdings of the Library, users are urged to consult the card catalogue, and the book catalogue entitled *Bibliotheca Osleriana;* both are in the Wellcome Camera. At present, the collection is not completely catalogued anywhere else in the University.

2.4 MEDICAL SOCIETIES

2.4.1 McGILL MEDICAL STUDENTS' SOCIETY

The Society is an association of all registered medical students. Acting through its Council, which is composed of elected and appointed student representatives, the Society performs two main functions:

1) to represent the medical student body in all its dealings with the Faculty of Medicine, and

2) to regulate all Society affairs, e.g., Medical Ball, Banquet, and Essay Competition.

In performing its first function, the Society leaders act as a liaison between faculty and students on all matters of mutual interest and concern.

The second main function involves the organization of the medical student extra-curricular life as it exists. Besides sponsoring social functions, the Society publishes a quarterly journal, *The McGill Medical Journal,* which contains reports of student research and scholarly articles on many aspects of medicine. The Society also publishes a monthly *Bulletin* to inform students of current news and upcoming events, and an annual yearbook, *The Speculum.*

Active participation in Society affairs is one of the best ways of complementing medical school experience.

2.4.2 OSLER SOCIETY

The Osler Society was founded in the Spring of 1921 by a number of undergraduates in Medicine, its object being to perpetuate the memory and teachings of Sir William Osler by the reading of papers and discussion of topics reflecting his ideals of a liberal medical education. Those interested may supplement their clinical and scientific knowledge by the consideration of those topics of medicine which are of historical and literary significance.

The membership includes students from each class in the Faculty. Several professors have shown an active interest in the Society and have added a more mature note to the discussion. Each year an Honorary President has been elected from this older group.

2.5 ACADEMIC CREDIT TRANSFER AGREEMENT

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal, or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement* for details.

3 CURRICULA, COURSES OF STUDY AND PROGRAMS

3.1 PROGRAMS IN MEDICINE

3.1.1 APPLICATION FOR ADMISSION

Application for admission to the Faculty of Medicine must be made on the regular application form which may be obtained from the Associate Dean (Admissions), Room 609, McIntyre Medical Sciences Building. Application brochures for the first-year class of September 1974 will be available after September 1, 1973.

Applicants from outside the Province of Quebec will be asked to complete a pre-application form which will be reviewed by the Admissions Committee. Selected students will then be invited to complete a formal application.

The Admissions Committee will accept applications from candidates older than 27 years only if they have outstanding or exceptional qualifications.

As the number of students in each class is limited, applications should be made as soon as possible after September 1, 1973 and not later than March 1, 1974. Each application must be accompanied by a non-returnable fee of fifteen dollars in the form of a cheque or money order payable to McGill University.

3.1.2 REQUIREMENTS FOR ENTRANCE

3.1.2.1 Four-Year Program in Medicine

(a) Total Academic Credits: The minimum requirement for admission to the medical program is the satisfactory completion of three full years of study at a recognized college or university after the completion of secondary school.

(b) Scientific Requirements: In the scientific branches, certain subjects are specifically required:

Chemistry, two full courses including general chemistry and organic chemistry, with laboratory work.
Physics, one full course with laboratory work.
Biology, one full course including studies of biology at the cell and molecular level.

In addition, a full course in human or mammalian physiology is highly recommended.

(c) Cultural Requirements: In addition to the scientific requirements, applicants are encouraged to have an adequate preparation in English literature and composition, mathematics, and a working knowledge of the French language.

(d) Applicants who have studied in the English language during the three years prior to applying to this Faculty are required to take the Medical College Admission Test which is conducted by the Psychological Corporation (304 East 45th Street, New York, N.Y. 10017), and may be written in various centres. This test is given in May and October each year. The results of this test are not available for two months after taking the examination, so applicants are encouraged to take the test in May of the year prior to the application, or in October of the year in which they are applying. An applicant must write to the Psychological Corporation at least one month prior to the test date to request permission to take the Medical College Admission Test.

(e) In selecting courses, in addition to the specific requirements listed above, an intending medical student should plan his pre-medical program as a whole, and in accordance with a definite educational objective. Emphasis should be placed on the broad educational value and the intellectual training afforded, rather than on the factual content of such pre-medical curricula. The student is therefore advised to select a major field which appeals to him; this major field may be selected from the natural or the social sciences or the humanities. Certain subjects which, though not essential, have been found valuable in medical study and which may be included as electives if the curriculum in the major field permits, are psychology, sociology, genetics, anthropology, mathematics or languages.

Students with a strong interest in science and with an aptitude for scientific studies should consider pursuing physiology, biochemistry, anatomy, histology, or pharmacology at the B.Sc. level to a high standard, as all of these subjects provide an excellent background for entry into medical school.

Students are reminded that although the majority of applicants have completed their pre-medical studies in a Faculty of Science, successful applicants have been chosen by the Admissions Committee from other faculties including Arts, Nursing, Physiotherapy and Occupational Therapy, Dentistry, Law, Management, Education and Engineering, provided they have met the entrance requirements.

3.1.2.2 Five-Year Program in Medicine

Students from the Province of Quebec completing the two-year program in Quebec Colleges of General and Professional Education are eligible to submit an application. Successful applicants in this category will enter a five-year program. Students in the

first year of the five-year program will be registered in the Faculty of Science for the first year (Med-P year), following which the student proceeds into the present four-year medical curriculum. Such applicants may complete the scientific requirements during the Med-P year. Applicants for the five-year program are not required to take the Medical College Admission Test. (Successful applicants take the test in May of their Med-P year).

3.1.3 EQUIVALENT (ADVANCED) STANDING

Students are admitted to the first and third years only of this Faculty. A student of another medical school who wishes to apply for admission to the third year (advanced or equivalent standing) is required to submit an official statement of his preliminary education and of the medical program he has followed and of the standing he has obtained. This should be accompanied by a calendar of the medical school in which he has studied, giving a full statement of the course of study, and by a certificate of moral character and conduct.

The equivalent courses of study in schools recognized by this University shall be determined from time to time. Acceptance of a course of study as equivalent may not include the examination in that subject held by the recognized school and the student may be required to pass such examinations, individual or comprehensive, as may be required by this Faculty.

3.1.4 DEPOSIT

A deposit of fifty dollars is payable by the applicant within two weeks of the receipt of notice that he has been accepted for admission. This deposit is non-refundable after June 15, 1974. If an applicant registers within the prescribed registration period in September 1974, this deposit will be credited towards university fees. If an applicant fails to register, the deposit lapses and it will be used by the university to meet the cost of administration and overhead charges in caring for applicants who do not finally register.

3.2 REGISTRATION

Students in the Faculty of Medicine will register on Tuesday, September 4, 1973. There will be a late registration fee of $25.00. The fee will not be refunded except by authorization of the Faculty. No student will be admitted after the fifteenth day of the session except by special permission of the Faculty.

3.3 FEES

The University reserves the right to make changes without notice in its published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions described in the *General Announcement.*

3.3.1 UNIVERSITY FEES

1. Four-year program in Medicine
   First to third years $800.00
   Fourth year 805.00
2. Repeating Students
   Students repeating a year pay full fees.
3. *Ad eundem* Fee
   Students entering any year above the first pay a special *ad eundem* fee of 10.00

3.3.2 GENERAL REGULATIONS

1. Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Department.

The first instalment is due within 10 days after registration; the second instalment before January 13, 1974.

A late payment fee of $10.00 is charged for payment during the first 30 days after registration. A late payment fee of $25.00 is charged thereafter.

2. Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Department before August 23, 1973, otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all upper year students, either with their Reports of Sessional Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this for payment of the first instalment of fees, must obtain a Permit to Delay Payment of Fees from the Student Aid Office, McGill University.

The second instalment is due January 13, 1974. A late payment fee as mentioned above is charged for payment after the specified dates.

3. Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

All fees are payable in Canadian currency.

For further information and for a list of special fees see the *General Announcement.*

3.3.3 MICROSCOPES

The Faculty provides all students in first and second year with a first quality binocular microscope. In this way, all students have the same experience in microscopy as it applies to histology, microbiology, pathology and microhistology. A small fee is charged for the rental of these microscopes to cover general repairs and maintenance costs.

3.3.4 BOARD AND RESIDENCE

For details of board and residence and an estimate of expenses, see the *General Announcement.*

3.3.5 HEALTH SERVICE

For details of the Health Service and medical examinations see the *General Announcement.*

3.4 COURSES FOR THE DEGREE OF M.D.,C.M.

The minimum period of professional training required by the University as a qualification for the independent practice of Medicine shall be five years, including:

a) four years of medical study in the University leading to the degree of M.D.,C.M.; and

b) one year of internship in an approved hospital.

While the Faculty's administration exercises a general supervision of arrangements for internships, the Faculty of Medicine assumes no responsibility to provide an internship for any student.

A certificate that his medical education is completed and that he is eligible to sit for the examination of a licensing board shall not be issued to any graduate until the University is in possession of satisfactory evidence that he has completed the full requirements.

The work of the Curriculum Review Committee has led to the development of a rich and varied curriculum with increasing emphasis on integration and coordination of course content, both in basic science and clinical years. A number of integrated courses

are now offered, and this trend will likely continue. A twenty-nine week elective program during the second, third, and fourth sessions provides the student with the opportunity to make an earlier career choice, to return to a more intensive study of a basic science during the clinical years, or simply to explore a new or different medical or paramedical area.

FIRST SESSION
(40 weeks)

Anatomy (including Embryology), Biochemistry, Histology, History of Medicine, and Physiology. Integrated courses in Behavioural Science, Biology of Disease I (Epidemiology and Health, medical Microbiology, Genetics, and Pathology), and Endocrinology. An introductory course in Obstetrics is offered towards the end of the first session.

SECOND SESSION
(40 weeks)

During the first half of this session, integrated courses are offered in Biology of Disease II (Epidemiology and Health, medical Microbiology, special Pathology, and Pathophysiology) and the Central Nervous System (Neuroanatomy, Neurophysiology, and Psychology). In the second half, the emphasis shifts to the Introduction to Clinical Science, and the session concludes with an eight week elective period. Early in the second half, the student is introduced to Pharmacology and Therapeutics, medical jurisprudence, and the fundamentals of Anaesthesia and Ophthalmology.

THIRD SESSION
(36 weeks)

Four nine-week blocks of Medicine, Surgery, Psychiatry, and Elective. In addition, clinical teaching in Neurology and Neurosurgery, Ophthalmology, Otolaryngology, and Radiology. A full lecture course in Pharmacology and Therapeutics is offered during the session.

FOURTH SESSION
(Clinical Clerkship — 52 weeks)

All students rotate through clinical services in Medicine, Surgery, Paediatrics, and Obstetrics and Gynaecology. In addition, a 12-week elective period is provided. On each of these services, the clinical clerk will occupy a well-defined position as a regular member of a clinical teaching unit, with increased responsibility for patient care. This fourth-year clerkship establishes a more appropriate gradient of responsibility, allowing a senior student to have an excellent opportunity to improve on the major gains in clinical skills and professional maturity made during the third year.

The clinical clerkship is structured to satisfy the demands of most licensing bodies. Consequently, students may enter directly into straight internships as a first phase of their specialty training.

Each student will receive a stipend of $188 per month from the Provincial Government and is entitled to four weeks vacation which must be taken during the first four weeks of the clerkship.

3.5 CURRICULUM REVIEW

The Faculty realizes that there is a need for constant review of the medical curriculum necessitated by:

a) Current rapid advances in scientific knowledge.

b) Probable changes in the role of the medical school in relation to the community with concomitant changes in the delivery of health care.

c) Continued application of principles developed in the field of general educational science to medical education.

Therefore a permanent student-faculty curriculum committee operates within the Faculty of Medicine. This Committee is charged with the task of studying the necessity for further curriculum revision, and planning the implementation of any modifications thought desirable.

3.6 EXAMINATIONS

The examinations taken within the Faculty of Medicine are divided into two groups, namely major examinations and minor examinations. Major examinations are the final examinations in Anatomy (Embryology), Histology, Physiology, Biochemistry, Pharmacology, Medical Microbiology, Special Pathology, Epidemiology and Health, Paediatrics, Medicine, Surgery, Obstetrics and Gynaecology, Psychiatry, Central Nervous System.

The examinations in Medicine, Surgery, Obstetrics and Gynaecology, and Psychiatry at the conclusion of the Third Session are ranked as major examinations, even though they are not the final examinations in these subjects.

Minor examinations include the final examinations in General Pathology and Introduction to Clinical Sciences.

A student who fails in any major examination will be required, before he writes a supplemental examination, to present to the Dean's office from the senior professor of the department concerned a certificate that the student has taken sufficient extra tuition as would indicate that he has reviewed the subject and is a suitable candidate for the supplemental examination.

There is a strict difference between the importance of a major and a minor examination. If a student fails in the supplemental of a major examination, there are definite restrictions as shown below, but if he fails in the supplemental of a minor examination he is permitted to carry conditions as shown below.

A student is not allowed supplementals in three major examinations in any one session. He will be required to repeat his year or retire as decided by the Promotion Committee, from whose decision there shall be no appeal.

A student is not allowed supplementals in two major and one minor examination in any one session. He will be required to repeat his year or retire as decided by the Promotion Committee, but he may appear before the Promotion Committee to plead his case if it is decided that he should retire.

Unless the Promotion Committee finds special mitigating circumstances, a failure in the supplemental of a major examination will require the student to repeat his year, and no student may repeat such a year more than once. Any student who fails in the supplementals of two major examinations in any one year shall be required to retire without the privilege of further supplementals.

A student who fails in the supplementals of three or more minor examinations in any one year must repeat this year or may be asked to retire, as may be decided by the Promotion Committee, but he may appear before the Promotion Committee to plead his case if it is decided that he should retire.

A student who fails in the supplementals of not more than two minor examinations may proceed with other subjects in the following year, carrying such subjects as conditions, but may not sit any subsequent major examinations until the conditions have been removed, nor may he carry more than two conditions at one time.

All conditions must be removed by the end of the first term (November) in each session when additional supplemental examinations will be held. Failure in any of these will require the student to revert to his previous year and to repeat the courses of the Winter and Spring terms.

A student in his final year may take a supplemental examination in one subject only, but must present a certificate from the senior professor of the Department concerned that he has taken extra tuition in this subject in one of the teaching hospitals of the McGill Faculty of Medicine. If he should fail in this supplemental examination, he must repeat the year of study and pass all the major examinations at the completion of the session.

A student in his final year who fails in two subjects will not be permitted supplementals but must repeat the year or retire, as decided by the Promotion Committee, from whose decision there shall be no appeal.

A student will not be allowed to repeat a year more than once nor may he repeat a subsequent year if such repetition has been due to failure in examinations, except on special recommendation of the Promotion Committee, acting upon the motion of the representatives on the committee of the Department concerned.

A student who has been permitted to repeat his year must attain an overall average of 65% in order to continue in his program.

There shall be Promotion Committees for each year, consisting of representatives, appointed by the Dean, of the Departments offering major or minor examinations during that year, and the Dean (ex officio). Each Committee will pass on all cases of students who fail to satisfy course requirements in the respective year.

No evaluation, examination mark, etc., shall be considered final until passed by the Promotion Committee.

The Faculty reserves the right to require the withdrawal of any student at any time if, in the opinion of his instructors, he is incompetent. There can be no appeal from this decision.

3.6.1 GRADING

The Faculty employs a modification of the pass-fail system. This means that no marks or grades are released to any agency, institution, or individual outside McGill University. All departments bear responsibility for evaluation of the students' performance and submit all final evaluations to the appropriate Promotion Committee of Faculty. Following approval by the Promotion Committee, the evaluation data are recorded in the dean's office and form part of the students' permanent academic files.

3.7 REQUIREMENTS FOR THE DEGREE OF M.D.,C.M.

1) Every candidate for the degree of Doctor of Medicine and Master of Surgery in this University must be at least twenty-one years of age and of good moral character.

2) He must have fulfilled all the requirements for entrance to the Faculty of Medicine and have attended courses of instruction for four full sessions of not less than nine months each in this University or in some other university, college or school of Medicine, approved by this University.

3) No one is permitted to become a candidate for the degree who has not attended at least two full sessions at this University.

4) Every candidate for the degree must have passed all the required examinations in the subjects comprising the Medical course.

5) He must have attended the practice of the Royal Victoria Hospital or the Montreal General Hospital, or of some other hospital (with not fewer than one hundred beds) approved by this University and the practice of the Montreal Children's Hospital; and must have acted as clinical clerk in medicine, surgery, paediatrics and psychiatry and have fully reported upon the prescribed number of cases.

3.7.1 INTERN MATCHING SERVICE

A matching service is a clearinghouse designed to help final year medical students obtain the internships of their choice and to help hospitals and internship program directors obtain the students of their choice. It provides an orderly method for students to decide where to intern and for hospitals to decide which applicants they wish to enrol. For both students and program directors, it removes the factors that generate unfair pressures and premature decisions.

The matching service acts as the student's agent on the instructions embodied in the student's confidential list of all the internships for which he or she has applied, ranked in order of preference. Similarly, the matching service acts as the hospital's agent on the instructions embodied in its confidential list of all the students who have applied, ranked in order of the hospital's preference.

In the past few years final year students at McGill have participated in four different matching services. The medical faculty of McGill at the request of the medical students

has provided a matching service for applicants for straight internships in a McGill affiliated hospital. The Quebec Intern Matching Service sponsored by the Quebec College of Physicians & Surgeons matches applicants from Quebec universities seeking mixed or rotating internship in Quebec hospitals. The Canadian Intern Matching Service matches Canadian applicants for straight mixed or rotating internships in over 120 training programs across Canada. The National Intern Matching Service matches all applicants to American internship programs.

A full explanation of these medical matching services is provided to third-year medical students in June.

3.8 REQUIREMENTS FOR LICENCE

Candidates accepted for admission are reminded that it is their personal responsibility to ensure that they fulfil all the licensing requirements of the country in which they intend to practise medicine. A university degree does not confer the right to practise. In each province of Canada, in each one of the United States and in all other countries the authority to license is vested in a licensing body which has its own special laws and requirements. In many cases a special standard of general education is insisted upon before *beginning* the study of medicine. One of the requirements in several provinces is that the entrance qualifications of the student must be registered with the provincial licensing body for five years before a licence to practise can be obtained.

Candidates accepted for admission should therefore communicate as soon as possible with the licensing body of the country in which they intend to practise and obtain from that licensing body the necessary instructions.

Non-Canadian candidates wishing to practise medicine in the Province of Quebec must have a working knowledge of French before they will be granted a permanent licence.

Full information as to the requirements for registration in the various provinces may be obtained from the Registrars of the Provincial Medical Boards as follows:

QUEBEC — Dr. A. Roy, 1440 St. Catherine St. West, Montreal 107, P.Q.

ONTARIO — Dr. J. C. C. Dawson, 64 Prince Arthur Ave., Toronto 5, Ont.

NEW BRUNSWICK — Dr. John R. Nugent, 112 Carleton St., Saint John, N.B.

NOVA SCOTIA — Dr. M. R. Macdonald, Sir Charles Tupper Medical Building, 15th Floor, University Ave., Halifax, N.S.

PRINCE EDWARD ISLAND — Dr. S. MacDonald, 206 Spring Park Rd., Charlottetown, P.E.I.

MANITOBA — Dr. J. B. Morrison, 371 Broadway Ave., Winnipeg, Man.

ALBERTA — Dr. R. Woolstencroft, 9901-108th St., Edmonton, Alta.

SASKATCHEWAN — Dr. H. D. Dalgleish, 932 Spadina Crescent E., Saskatoon, Sask.

BRITISH COLUMBIA — Dr. W. G. McClure, 1807 West 10th Ave., Vancouver 9, B.C.

NEWFOUNDLAND — Dr. G. M. Brownrigg, 47 Queens Rd., St. John's, Newfoundland.

3.8.1 MEDICAL COUNCIL OF CANADA

In order to take the examination of the Medical Council of Canada, a candidate must present a certificate from the Registrar of a Provincial Medical Board to the effect that he holds qualifications accepted and approved of by the Medical Board of that province.

Full information may be obtained by writing to the Registrar, Box 8234, 1867 Alta Vista Drive, Ottawa, Ontario, Canada.

3.9 GRADUATE PROGRAMS LEADING TO DIPLOMAS IN THE CLINICAL DEPARTMENTS OF THE FACULTY OF MEDICINE

The Faculty of Medicine in conjunction with the basic science departments and the affiliated teaching hospitals offers a wide variety of programs leading to degrees of M.Sc. and Ph.D. or to McGill Certificates of Intern and Resident Training. Details of the graduate programs available are included in the McGill Calendar of Intern and Resident Training Programs and in the Calendar of Graduate Studies in Medical and Allied Sciences.

3.9.1 INQUIRIES

Initial inquiries and inquiries of a general nature should be addressed to the Associate Dean (Postgraduate Medical Education) of the Faculty of Medicine.

Inquiries about the details of individual diploma programs should be addressed to the Chairman of the department concerned.

3.10 GRADUATE STUDIES AND RESEARCH IN THE MEDICAL SCIENCES

Facilities for graduate work in the basic medical sciences and in the clinical sciences are offered by many of the Departments of the Faculty of Medicine.

Research in relation to clinical disciplines is carried out in the research laboratories at the Montreal Children's Hospital, the Montreal General Hospital and the Royal Victoria Hospital. Graduate work in the clinical sciences is supervised by those members of the Departments of Medicine, Surgery and Paediatrics who are responsible for the direction of research programs; and for administrative purposes graduate work in these areas is grouped under the Department of Experimental Medicine, and the Division of Experimental Surgery, which is a branch of the Department of Surgery.

Inquiries concerning research training in the medical sciences should be directed to the chairman of the department in which the candidate wishes to receive his or her graduate education. Alternatively, letters may be addressed to:

Associate Dean for Graduate Studies and Research
The Faculty of Medicine
McGill University
3655 Drummond St.
Montreal 109, Quebec.

3.10.1 ENROLMENT AS A PARTIAL STUDENT IN FACULTY OF GRADUATE STUDIES AND RESEARCH

In the case of a student who is not proceeding to an M.Sc. or Ph.D. degree, but for whom the committee in charge, on the recommendation of the tutor, considers it important that the student should spend some time in study in one of the medical sciences, individual arrangements will be made by the Chairman of the department, either directly or through the student's tutor with the Chairman of the medical science concerned. Such students will be enrolled in the Faculty of Graduate Studies and Research and will be governed by the rules and regulations of this Faculty, e.g., in regard to fees applicable to partial students.

4 COURSES OF INSTRUCTION

4.1 ANAESTHESIA

4.1.1 UNDERGRADUATE COURSES

A student in Medicine, before reaching that part of the curriculum which deals with clinical anaesthesia, will have acquired during his earlier years at the University an introduction into the Basic Sciences on which the discipline of Anaesthesia is based.

During the First year three introductory lectures are given, one on interviewing techniques and two outlining the basic principles of regional and general anaesthesia.

During the Second year a series of lectures is presented on clinical anaesthesia and its related areas. At these sessions the student is instructed in the Physiopathology of patients undergoing anaesthesia and surgery, the basic properties of anaesthetic drugs and the principles underlying anaesthetic techniques. This series will serve as a background for the administration of anaesthesia and the care of patients undergoing surgery.

In the Third and Fourth years there is an opportunity for the student, while undertaking his surgical training, to spend some time with an anaesthetist in the operating room.

4.1.2 ELECTIVES

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate Elective Catalogue. Detailed information can be obtained from the Associate Dean (Medical Education). An elective is also offered during any of the undergraduate years to work in one of the anaesthesia laboratories.

4.1.3 POSTGRADUATE AND CONTINUING EDUCATION

See *Announcement of the Faculty of Graduate Studies and Research.*

4.2 ANATOMY

4.2.1 REQUIRED COURSES

GROSS ANATOMY 501-121M. Dissection and lectures cover the gross anatomy of the body. The course includes Embryology, Surface and Radiological Anatomy and an introduction to Clinical Anatomy.

INTRODUCTION TO THE CENTRAL NERVOUS SYSTEM 501-221M. For Second year students and conducted with the co-operation of the Departments of Neurology and Neurosurgery, Physiology and Psychology. This course is listed under the Department of Neurology and Neurosurgery 531-221M.

APPLIED ANATOMY. Designed for graduate students.

Texts: E. Gardner, D. J. Gray, R. O'Rahilly, *Anatomy*, 2nd ed. (W. B. Saunders, 1963); D. F. Davies, *Gray's Anatomy*, 34th ed. (Longmans, 1967); J. C. B. Grant, *An Atlas of Anatomy*, 5th ed. (Williams and Wilkins, 1962); J. T. Aitken *et al.*, *A Manual of Human Anatomy*, 2nd ed., 5 vols. (Livingstone, 1964); J. Langman, *Medical Embryology* (Williams and Wilkins, 1963).

4.2.2 ELECTIVES

Major electives are offered during the Second, Third and Fouth Years. Details of this program are published in a separate *Elective Catalogue.* Detailed information can be obtained from the Associate Dean (Medical Education).

ADVANCED NEURO-ANATOMY. Lecture and laboratory work on two evenings per week from October to December. By arrangement the course is held in the Neurological Institute under the direction of Dr. McNaughton. The class is limited to ten. The course consists of the construction of plasticine models of the brain, based on individual study of the brain and brain stem.

4.2.3 **MICROSCOPIC ANATOMY**
Required Course

HISTOLOGY. The study of the cytology and structure of tissues and organs. *Texts:* A. W. Ham, *Histology,* 5th ed. (Lippincott, 1965); W. Bloom and D. W. Fawcett, *A Textbook of Histology,* 8th ed. (Saunders, 1962).

4.2.4 **EMBRYOLOGY**
Required Course

THE STUDY OF HUMAN DEVELOPMENTAL ANATOMY. This course is integrated with *1. Gross Anatomy. Texts:* J. Langman, *Medical Embryology* (Williams and Wilkins, 1963); L. A. Arey, *Developmental Anatomy,* 6th ed. (Saunders, 1954); W. J. Hamilton *et al., Human Embryology,* 2nd ed. (Heffer, 1952).

For graduate courses, see the *Announcement of the Faculty of Graduate Studies and Research.*

4.3 BIOCHEMISTRY

4.3.1 **First Year**
(507-121M)

Two periods of lectures and clinical demonstrations and four hours of laboratory work per week. An Endocrinology course is given jointly with the Departments of Physiology and Anatomy.

4.3.2 **ELECTIVES**

A limited number of students in their Second, Third and Fourth years may take their ten week elective periods in the Department. Students will be assigned original research projects in the Department and under the direction of a member of its staff. They will also take part in all Departmental and group seminars and audit graduate courses. Students who plan to spend all three elective periods on one project will be particularly welcome and may hope to complete a useful piece of research.

4.3.3 **OPTIONAL ADDITIONAL COURSES**

For students who are interested in additional studies in Biochemistry, current undergraduate and graduate courses in the Department are recommended. (See the *Announcements* of the Faculty of Science and the Faculty of Graduate Studies and Research.)

4.4 EPIDEMIOLOGY AND HEALTH

4.4.1 **First Year**
(513-121M)

GENERAL BIOLOGY OF DISEASE. A co-ordinated course to be presented by the Departments of Epidemiology and Health, Genetics, Microbiology and Immunology, and Pathology during the third and fourth quarters. The course will be centred around the concept that disease results in the individual through the interaction of host and environmental factors. The Epidemiology contribution comprises the principles of epidemiology presented in ten lectures and illustrated in several teaching exercises, and the social aspects of medicine presented in ten lectures and/or discussions.

4.4.2 **Second Year**
(513-221M)

BIOLOGY OF DISEASE. A twenty-three week co-ordinated program during the first, second and third quarters which will present a general introduction followed by an organ-system approach to disease.

The contribution of the Department of Epidemiology and Health to this program will include the epidemiology of the main diseases, the factors influencing prevention, and control of disease. The organization of public health, occupational and medical care services is also considered. Substantial time is given to small group project work during the course.

MEDICAL JURISPRUDENCE. Course of 9 lectures by speakers from the Faculty of Law.

4.4.3

ELECTIVES

The Department offers two types of elective. *Research electives* are open to second, third and fourth year students in all quarters, and may be linked with a summer research project. These electives may take one of two forms: a) students having a special interest in a field of work within the province of the Department's activities are welcome to pursue it on a tutorial basis with a member of the staff; and b) students may collaborate in research projects which are in progress. *Course electives* are available to students who wish to participate in graduate courses and projects; they may in this way obtain credit towards an M.Sc. degree. For a listing of these courses see the *Announcement of the Faculty of Graduate Studies and Research.*

The *Elective Catalogue* provides details of the areas of current research interest, lists of projects available and the staff member concerned, and relevant details of graduate courses and projects.

4.5 HISTORY OF MEDICINE

4.5.1.

REQUIRED COURSE

HISTORY OF MEDICINE 522-121M (First year). A series of 20 lectures providing a survey of the natural, social and intellectual background to modern medicine.

From time to time, and at the request of other departments, single lectures are given on the history of special subjects within courses being taught by those departments.

4.5.2

ELECTIVE

ADVANCED WORK AND RESEARCH. Opportunity is offered for a limited number of students to pursue advanced work or research in the history and philosophy of medicine, its sciences, and public health. See *Elective Catalogue* for details.

4.6 MEDICINE

4.6.1 THE UNDERGRADUATE CURRICULUM IN THE DEPARTMENT OF MEDICINE

The object of the medical curriculum is to encourage in each student the development of critical judgment as he acquires a sound knowledge of the Basic Sciences essential to an understanding of disease processes, and supervised experience in their recognition and treatment of disease in a clinical setting. Personal contact between students and instructors at all levels is emphasized, and increasing use is made of new instructional aids.

A thorough understanding of the mechanisms of disease is provided by the Basic Science portion of the curriculum. This is consolidated and enhanced in the clinical years by association in the teaching hospitals with medical scientists working in the modern scientific laboratories devoted to clinical investigation. Every attempt is made to provide individual instruction wherever possible. Emphasis is given to a sympathetic understanding of the problems of sick individuals, as well as the treatment of their specific illnesses.

4.6.1.1

Required Courses
Second Year
(525-221M)

INTRODUCTION TO CLINICAL SCIENCES. Third term of second year in the Teaching Hospitals. Students are given intensive instruction in basic clinical skills. They are also taught how to perform routine laboratory tests. Ample opportunity is then available for them to practise these clinical skills on the wards of the teaching hospitals. Students are assigned cases for complete clinical workup. These cases are written up and presented to an experienced clinical instructor. Although emphasis is placed on learning how to take a meaningful history and perform an accurate physical examination, students are also encouraged to begin to develop skill in diagnosis and investigation of a patient's problems. They are expected to read in the general texts around the cases which they encounter.

Third Year
(526-321M)

BLOCK TEACHING IN MEDICINE. For a period of 9 weeks, each student spends his full day on the wards of one of the teaching hospitals. He studies individual cases, writes case reports, presents cases at the bedside, does routine laboratory tests on them, and perfects the skills he acquired in Second year. His work is closly supervised by Teaching Fellows, and bedside clinics are conducted at least twice a week by his Attending Staff instructor. Further assistance in understanding the meaning of the clinical expression of the diseases he encounters is provided for by intensive reading. There are regular instructional periods in Ophthalmology, Dermatology, Radiology, and Electrocardiography.

Physician-In-Chief rounds are held weekly.

Fourth Year
(526-421M)

Extensive experience in Medicine is provided in the Fourth year. The senior student becomes integrated into the team of staff, residents and interns, with an increasing share in the responsibility for the care of patients on the ward and in the Outpatient Department. An intramural program of seminar teaching in specialty subjects is provided as well during this time.

Electives

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue.* Additional information can be obtained from the Associate Dean (Medical Education)

4.6.2 EXPERIMENTAL MEDICINE

See *Announcement of the Faculty of Graduate Studies and Research.*

4.7 MICROBIOLOGY AND IMMUNOLOGY

All lectures and laboratory periods are held in the Pathology Institute.

4.7.1

First Year
(528-121M)

GENERAL BIOLOGY OF DISEASE. A co-ordinated course to be presented by the Departments of Epidemiology and Health, Microbiology and Immunology, and Pathology during the third and fourth quarters. The course will be centred around the concept that disease results in the individual through the interaction of host and environmental factors.

4.7.2

Second Year
(528-221M)

BIOLOGY OF DISEASE. A twenty-three week co-ordinated program during the first, second and third quarters which will present a general introduction followed by an organ-system approach to disease.

4.7.3 ELECTIVES

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue.* Detailed information can be obtained from the Associate Dean (Medical Education).

4.7.4 OTHER COURSES

The Department offers a range of courses leading to the Honours B.Sc. in Microbiology and is well-equipped for graduate research leading to the M.Sc. and Ph.D. degrees. Training in clinical microbiology is available in the service laboratories of the Royal Victoria Hospital and the Montreal Neurological Institute located in the Department.

See the *Announcements* of the Faculty of Science and the Faculty of Graduate Studies and Research.

4.8 NEUROLOGY AND NEUROSURGERY

4.8.1

Second Year
(531-221M)

INTRODUCTION TO THE CENTRAL NERVOUS SYSTEMS. Combined course given by the Departments of Anatomy, Neurology and Neurosurgery, Physiology and Psychology. Lectures, laboratory work and clinical demonstrations during the first and second quarters.

PROFESSORS FEINDEL, ROBB, GLOOR/LAWRENCE AND STAFF

INSTRUCTION IN CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. Given in conjunction with the Department of Medicine in the third term.

PROFESSOR ROBB AND STAFF

NEUROPATHOLOGY. Given in conjunction with the Department of Pathology.

PROFESSORS MATHIESON AND CARPENTER

4.8.2

Third Year
(531-321M)

CLINICS AND CONFERENCES IN CONJUNCTION WITH THE DEPARTMENTS OF MEDICINE AND SURGERY.

PROFESSORS FEINDEL/BERTRAND, ROBB, BAXTER, WATTERS AND STAFF

4.8.3

Fourth Year
(531-421M)

CLINICS AND CONFERENCES IN CONJUNCTION WITH THE DEPARTMENTS OF MEDICINE AND SURGERY.

PROFESSORS FEINDEL/ROBB, BAXTER, WATTERS AND STAFF

4.8.4

ELECTIVE PROGRAM

Ten-week periods of clinical clerkship or supervised research in one of the Neurosciences for Second, Third and Fourth year medical students. Consult *Elective Catalogue* for details.

4.8.5

DIPLOMA IN NEUROLOGY

See *Announcement of the Faculty of Graduate Studies and Research.*

4.8.6

DIPLOMA IN NEUROSURGERY

See *Announcement of the Faculty of Graduate Studies and Research.*

4.9 OBSTETRICS AND GYNAECOLOGY

4.9.1

UNDERGRADUATE PROGRAM

The course is designed to impart a fundamental knowledge, in theory and practice, of the processes of Human Parturition and Gynaecology. The student is introduced to the subject in the First year. In Second year during the winter term, a course is devoted to Obstetrics and Gynaecologic history-taking and clinical and laboratory techniques for diagnosis as part of the integrated Introduction to Clinical Sciences Course.

Thereafter in Fourth year, intensive teaching is carried out using to the full the facilities of the Royal Victoria-Montreal Maternity Hospital, the Montreal General Hospital, the Catherine Booth Hospital and the Reddy Memorial Hospital.

4.9.1.1

Required Courses

First Year
(534-121M)

Fourteen hours are devoted during the final quarter of the First year to a coordinated intensive introduction to human reproductive biology, using as a model concurrent studies in the fields of embryology, anatomy and the particular biochemical and endocrine aspects of the subject. The course closes with a description of the physiology of pregnancy and labour. This course amplifies and defines those aspects of the Behavioural Sciences concerning reproduction which are taken during the same teaching term.

Second Year (534-221M)

During this year the student is introduced to the clinical diagnosis of the female patient as part of the Introduction to Clinical Sciences Program.

Fourth Year (534-421M)

During an eight-week period in the teaching hospitals students "live in" and participate fully as clinical clerks in all phases of the research, investigative and specialized work of the department. Following the prepared program ensures that the student will proceed to his final oral examinations exposed to all phases of Obstetrics and Gynaecology.

4.9.1.2 Electives

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

Textbooks: N. J. Eastman and L. M. Hellman, *Obstetrics* (Appleton); Jeffcoate, *Principles of Gynaecology* (Butterworth); Ralph C. Benson, *Handbook of Obstetrics and Gynaecology*.

Ancillary Reading: (1) Harry Oxorn and W. R. Foote, *Human Labour and Birth* (Appleton, 1967); (2) Danforth, *Textbook of Obstetrics and Gynaecology* (Harper & Row).

4.9.2 GRADUATE PROGRAM

See *Announcement of the Faculty of Graduate Studies and Research.*

4.10 OPHTHALMOLOGY

4.10.1 UNDERGRADUATE COURSES

The undergraduate work in Ophthalmology is designed to meet the needs of a well-trained general practitioner and embraces the following courses:

4.10.1.1 Second Year (537-221M)

ROUTINE EXAMINATION OF THE EYE. The various tests used in routine examination of the eye are demonstrated. Instruction in the use of ophthalmoscope is emphasized. 5 hours.

PATHOLOGY OF THE EYE. (6 hours: two periods of 3 hours each).

LECTURES TO THE ENTIRE CLASS. A survey of the entire field designed to furnish a background of essential information for the clinical work. (9 hours).

4.10.1.2 Third Year (537-321M)

PRACTICAL OPHTHALMOSCOPY. Montreal General and Royal Victoria Hospitals. (6 hours).

4.10.1.3 Electives

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

Texts: Scheie & Albert, *Adler's Textbook of Ophthalmology*, 8th ed. (Saunders, 1969); Vaughan, Asbury, Cook, *General Ophthalmology*, 6th ed. (Lange, 1971); Frank W. Newell, *Ophthalmology*, 2nd ed. (Mosby, 1969).

References: W. S. Duke-Elder, *System of Ophthalmology*, 12 vols. (Kimpton, 1958-72); Hogan & Zimmerman; *Ophthalmic Pathology*, 2nd ed. (Saunders, 1962); W. S. Duke-Elder, *Parson's Diseases of the Eye*, 15th ed. (Longman, 1970).

4.10.2 GRADUATE PROGRAM

See *Announcement of the Faculty of Graduate Studies and Research.*

4.11 OTOLARYNGOLOGY

4.11.1 UNDERGRADUATE COURSES

Instruction in Otolaryngology is given to students in the first, second, third and fourth years and is designed to cover the basic principles and clinical aspects of the specialty. Clinical courses are conducted on the Wards and in the Outpatient Departments of the Royal Victoria Hospital and the Montreal General Hospital. As much as possible, demonstrations are carried out before small groups of students.

4.11.1.1 First Year (540-121M)

An introductory course in clinical anatomy pertaining to the ear, nose and throat is presented during the First year. The emphasis is upon demonstration of normal anatomy and methods of physical examination.

4.11.1.2 Second Year (540-221M)

The academic year 1968-69 saw the introduction of a new course, "Introduction to the Clinical Sciences". The Department of Otolaryngology actively participates in this course, providing six hours of instruction in Otolaryngological history taking and methods of physical examination. At the conclusion of these presentations, the student should be fully conversant with medical transcript as it pertains to Otolaryngology, as well as with the instrumentation used in patient examination. Emphasis will not be placed upon ear, nose and throat disorders, as such, but rather upon the examination of the normal patient.

4.11.1.3 Third Year (540-321M)

"Block Time" clinical instruction is given to small groups of students formed into sessions of six mornings per group. In these sessions didactic lectures are given relating to ear, nose and throat disorders and the students are given the opportunity to conduct examination on hospital patients with demonstration of ear, nose and throat pathology as such.

4.11.1.4 Fourth Year (540-421M)

Clinical clerkships were introduced in the academic year 1969-70. In the Department of Otolaryngology the student is incorporated as a house officer during this period and thereby attends clinics, conducts patient examination under supervision, participates in ward rounds, weekly conferences and observes in the Operating Theatres. The students are encouraged to make presentations during this "living in" period and openly discuss the current problems seen under these circumstances.

4.11.1.5 Elective Opportunities

The Department of Otolaryngology offers elective opportunities to the second, third and fourth year medical students in both research and clinical divisions. Since the introduction of the elective scheme in 1969 the Department of Otolaryngology has offered elective opportunities both in research and clinical studies to four students per quarter.

4.11.2 GRADUATE PROGRAM

See *Announcement of the Faculty of Graduate Studies and Research.*

4.12 PAEDIATRICS

4.12.1 REQUIRED COURSES

4.12.1.1 First and Second Years (543-121M; 543-221M)

An introduction to Paediatrics is provided by the Staff of the Department of Paediatrics in the Behaviour Course given to First year and the Introduction to Clinical Sciences Course, presented in the last term of Second year.

4.12.1.2 Fourth Year (543-421M)

A nine-week clerkship in paediatrics as a member of a clinical ward service provides the opportunity for experience in the management of paediatric problems under supervision. In addition to regular ward rounds, clinical pathological conferences and grand rounds, the clinical clerks participate in a series of conferences structured to provide a review of the essentials of paediatrics.

4.12.2 ELECTIVES

Twenty major elective opportunities available to second, third and fourth year students include clinical and Ambulatory Paediatrics, Paediatric sub-specialties and paediatric research including Biochemical Genetics, Endocrinology, Neonatology, Nephrology and cardio-respiratory investigation. Details of this program are published in a separate *Elective Catalogue*. Further information can be obtained from the Associate Dean (Medical Education).

4.13 PATHOLOGY

4.13.1 REQUIRED UNDERGRADUATE COURSES

First Year (546-121M)

GENERAL PATHOLOGY. This course presents the basic biology of disease processes and is centred around the concept that disease results in the individual through the interaction of host and environmental factors. This course is coordinated with related offering by the Departments of Genetics, Microbiology & Immunology and Epidemiology.

Second Year (546-221M)

BIOLOGY OF DISEASE. A twenty-three week coordinated program during the first, second and third quarters which will present a general introduction followed by an organ-system approach to disease.

Third Year (546-321M, 300)

COURSE IN APPLIED PATHOLOGY. Weekly clinico-pathological conferences throughout one section of the Third year totalling 18 hours.

COURSE ADMINISTRATOR, DR. J. KNAACK

4.13.2 ELECTIVES

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

4.13.3 GRADUATE COURSES

See the *Announcement of the Faculty of Graduate Studies and Research*.

4.14 PHARMACOLOGY AND THERAPEUTICS

The basic medical course in Pharmacology and Therapeutics is designed to provide a systematic coverage of the pharmacodynamics of the more important groups of drugs, the factors that control and modify their effects, and the basis for selection and use of drugs in the treatment of disease.

Second Year
(549-221M)

Three hours a week during the third quarter.

Third Year
(549-321M)

Two hours a week throughout the year.

ELECTIVES

Facilities are available for a limited number of students to undertake research in pharmacology in any year of their medical course or during the summer. Work in clinical pharmacology can also be arranged for students in the Third and Fourth years of the medical program.

4.15 PHYSIOLOGY

First Year
(552-121M)

COURSE OF HUMAN SYSTEM PHYSIOLOGY. Students are recommended to take during their premedical studies an elementary course in human physiology (i.e., Physiology 211D). Lectures and demonstrations: three hours a week.

(552-521M)

MEDICAL/PHYSIOLOGY LABORATORY AND SEMINARS. Emphasis on the physiological background of clinical physiology function testing.

Students who, on entering medicine, have already taken advanced courses in Physiology, will be required to take course 552-521M but may select two of the graduate courses of the Department in place of course 552-121M.

Second Year
(552-221M)

ANATOMY AND PHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM. Two hours lectures, two hours laboratory, and one-hour demonstration a week, during the second term. This is one course, given by the Departments of Anatomy, Neurology and Neurosurgery, and Physiology.

OTHER COURSES

For other undergraduate courses in the Faculties of Arts and Science, see the *Announcement* of those Faculties.

For graduate courses, see the *Announcement of the Faculty of Graduate Studies and Research.*

4.16 PSYCHIATRY

4.16.1

REQUIRED UNDERGRADUATE COURSES

First Year
(555-121M)

LECTURES AND DEMONSTRATIONS — BEHAVIOUR, GROWTH AND DEVELOPMENT COURSE I. (Total time — 108 hours). This is an interdepartmental course which is given throughout the first year.

Committees of teachers, many of whom represent clinical departments, introduce the student to the medical role. The course, which has some sixty instructors, teaches by means of the introduction of patients and actual clinical situations using audio/visual aids. In this way it demonstrates many aspects of the life and work of doctors in a wide variety of fields. The didactic material is kept to a minimum.

The course begins with interviewing, then passes on to psychosomatic medicine and ethical considerations. An introductory survey is given of social medicine, utilizing participation techniques, the influence of medicine on socety, and vice versa. Subsequently, the psychology of the individual is dealt with at all levels from the animal to the individual patient, families and groups.

Sections then deal with parental loss and reparation, the problems of adoption, subjective aspects of being a patient. The care of sick students and doctors is also discussed. Following this, a section is devoted to chronic disease and death as they affect medical practice.

In the second section, directed by a member of the Department of Paediatrics, the effect of genetics upon behaviour is considered, followed up by behavioural and growth aspects of pre- and perinatal periods. A section on adolescents follows, in which with the help of normal and sick adolescents, their problems are investigated. A section on old age and another on sexuality complete the first year course. Direction of this course is shared with Paediatrics and Obstetrics and Gynaecology.

Second Year
(555-221M)

LECTURES AND DEMONSTRATIONS — BEHAVIOUR, GROWTH AND DEVELOPMENT COURSE II. (Total time — 18 hours). In the second quarter, Dr. N. R. Eade, Department of Pharmacology and Therapeutics, will give a section on drugs and behaviour (3 hours). This will be followed and the course completed by a presentation on psychopathology, directed by Dr. H. E. Lehmann. His committee will give a brief series of lectures demonstrating cases of psychiatric illness and an integrated approach to major behavioural disorders. (15 hours).

Third Year
(555-321M)

Nine weeks block teaching to acquaint students with the examination of patients and understanding of some of the major factors involved in abnormal behaviour. Diagnostic procedures, psychotherapeutic and physical methods of treatment will be among the aspects covered. Students will be provided with tutors on a group basis and will also have an opportunity to become conversant with certain more specialized areas of the field of psychiatry. An attempt will be made to provide a comprehensive experience of the total field of psychiatry and to provide a patient-oriented, responsibility-centred experience of emotional disorders.

4.16.2 **ELECTIVES**

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

4.16.3 **GRADUATE COURSES**
Diploma in Psychiatry (Dip. Psychiat.)

See *Announcement of the Faculty of Graduate Studies and Research.*

4.16.3.1 **Courses for the Degree of Master of Science in Psychiatry**

See the *Announcement of the Faculty of Graduate Studies and Research.*

4.17 DIAGNOSTIC RADIOLOGY

4.17.1 **UNDERGRADUATE COURSES**
First Year
(558-121M)

NORMAL ROENTGEN ANATOMY. In co-operation with the Department of Anatomy.
PROFESSOR HARRIS AND OTHERS

ROENTGEN DEMONSTRATIONS OF PHYSIOLOGY. In co-operation with the Department of Physiology.
PROFESSOR FRASER AND STAFF

Second Year
(558-221M)

Teaching in McGill's hospitals on "Biology of Disease" in co-operation with Departments of Pathology, Epidemiology and Microbiology.

Electives in Diagnostic Radiology in McGill teaching hospitals — The Royal Victoria Hospital, The Montreal General Hospital, The Jewish General Hospital, The Montreal Children's Hospital and The Montreal Neurological Institute.

Third Year
(558-321M)

Electives in Diagnostic Radiology are offered in all the Departments of Diagnostic Radiology of McGill teaching hospitals.

Seminars in Diagnostic Radiology are given weekly to Third year students during their "block time" in Medicine and Surgery.

Fourth Year
(558-421M)

Electives are offered in Diagnostic Radiology in all of the teaching hospitals of McGill.

Students during their "clinical clerkship" attend regular conferences with the Department of Diagnostic Radiology and the Clinical Departments of the teaching hospitals of McGill.

4.17.2

ELECTIVES

Major electives are offered during the Second, Third and Fourth years. Details of this program are published in a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

4.18 THERAPEUTIC RADIOLOGY

4.18.1

UNDERGRADUATE COURSES

First Year
(561-121M)

Special participation in the teaching of Basic Sciences not intended.

Second Year
(561-221M)

Introduction to Therapeutic Radiology (including the basic principles and applications of Radiation Physics, Radiobiology, and Radiopathology of conditions treated by means of ionizing radiation.)

Third Year
(561-321M)

a) Teaching of Clinical Therapeutic Radiotogy to be integrated with the surgical and medical aspects of Oncology in the management of neoplastic diseases; the details of such to be worked out with the Departments of Internal Medicine and Surgery.

b) Elective: Tutorial periods have been included with the list of electives from which students may select to come in Therapeutic Radiology.

Fourth Year
(561-421M)

Continuation of the clinical program initiated in the Third year while attending Internal Medicine and Surgery. Electives in Therapeutic Radiology will be available and could be arranged in either of the two major teaching hospitals.

4.18.2

GRADUATE COURSES

4.18.2.1

Diploma in Therapeutic Radiology

See *Announcement of the Faculty of Graduate Studies and Research.*

4.19 SURGERY

4.19.1 REQUIRED UNDERGRADUATE COURSES

Second Year (564-221M)

The student's initial contact with the Department of Surgery is in the First year when he takes the courses in Clinical Anatomy and Emergency Medical Care. However, surgical teaching begins in Second year. In the third quarter, special training is given towards the development of the knowledge, skills and attitudes required to perform a good history and physical examination. This instruction is part of the Introduction to Clinical Sciences Program.

Third Year (564-321M)

During the nine weeks on the surgical rotation, the student is provided with a variety of learning experiences, so that he may learn the principles of surgery. Much of the teaching is didactic either in The Montreal Children's Hospital, The Montreal General Hospital or in The Royal Victoria Hospital. However, the student is also assigned to a surgical service where he may write case reports, act as a dresser and assist at operations. The learning experiences include lectures, case presentations, seminars, tutorial sessions, special core curriculum conference, bedside teaching, participation in regular service and ward rounds, visits to the Emergency Department, clinical pathological conferences, as well as paediatric surgery instruction at the Shriner's Hospital and at The Montreal Children's Hospital.

Fourth Year (561-421M)

In the final year, the student spends eight weeks as a Clinical Clerk attached to the Surgical Department of the hospital. Four weeks are spent in general surgery, two weeks in a trauma service and the student is given the option of spending a further two-week period in one of the following services: — plastic surgery, orthopaedics, paediatric surgery at the M.C.H., urology, cardiovascular thoracic surgery, otolaryngology and anaesthesia. During this period, the student strives to acquire a basic knowledge of the practice of surgery.

4.19.2 ELECTIVES

Major electives are offered during the Second, Third and Fourth years. Details of this program are published is a separate *Elective Catalogue*. Detailed information can be obtained from the Associate Dean (Medical Education).

4.19.3 SURGICAL DISEASES OF CHILDREN

Some instruction in the surgical diseases of children is given during the trimester in which the students are assigned to Paediatrics at The Montreal Children's Hospital. Paediatric surgery is also taught during the surgical rotation in Third year. In Fourth year, Clinical Clerks may spend a two-week option in paediatric surgery at The Montreal Children's Hospital.

4.19.4 ORTHOPAEDIC SURGERY

First Year

Demonstrations. The functional anatomy given in conjunction with the Department of Anatomy.

Second Year

Principles of physical diagnosis of the musculoskeletal system as taught during the course on Introduction to Clinical Sciences.

Third Year

The principles of Orthopaedic Surgery are covered during the course on Surgery. An attempt is made to outline broadly the content of adult Orthopaedics, Children's Orthopaedics and fractures.

Fourth Year

Clinical Clerks spend two weeks in trauma and may take a two-week option in Orthopaedic Surgery. Electives are also available for those who wish to pursue the subject in depth.

4.19.5 UROLOGY

Weekly conferences are given in Third year and in the final year; students meet weekly with members of the Urology Attending Staff for the purpose of subject-oriented bedside teaching. In addition, a two-week option is available for Clinical Clerks in the Fourth year. Major electives are available for those who wish to pursue the subject in depth.

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McGill University

FACULTY OF MUSIC

1973-74

Strathcona Music Building
555 Sherbrooke St. West*
Montreal 112, Que., Canada
Telephone: (514) 392-4501

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* The official McGill University mailing address is:
McGill University P.O. Box 6070, Montreal 101, Que.

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CALENDAR FOR SESSION 1973-74

1973

August 13, Monday	Supplemental examinations begin in lecture courses in Music.
September 4, Tuesday to September 13, Thursday	Enrolment, placement tests, auditions, and interviews in Music; practical examinations (graduands only).
September 14, Friday	Registration of students in Music at the Sir Arthur Currie Memorial Gymnasium (9:00 a.m. to 4:00 p.m.).
September 17, Monday	Lectures and lessons begin in Music.
September 17, Monday to October 5, Friday	Change of course period in the Faculty of Music.
September 21, Friday	Last day for registration in the Faculty of Graduate Studies and Research.
October 1, Monday	Late registration.
October 8, Monday	Thanksgiving. Lectures cancelled. Administrative offices will be closed.
November 6, Tuesday	Fall Convocation.
November 11, Sunday	Remembrance Day.
November 19, Monday to November 23, Friday	Practical examinations.
December 17, Monday to December 21, Friday	Examinations in first-term Department of Music Theory courses.
December 21, Friday	End of first term.

1974

January 7, Monday	Second term begins in Music.
January 7, Monday to January 25, Friday	Change of course period in the Faculty of Music.
February 21, Thursday	Last day for dropping second-term courses without penalty in Faculty of Music.
February 25, Monday to February 28, Thursday	Practical examinations.
March 1, Friday and March 2, Saturday	Mid-term weekend holiday. Lectures cancelled.
March 4, Monday to March 8, Friday	Entrance auditions for Music applicants.
April 11, Thursday	Last day of instruction in Music.
April 12, Friday to April 15, Monday (inc.)	Easter. No lectures. Administrative offices will be closed.
April 17, Wednesday	Examinations begin in lecture courses in Music.
April 22, Monday to April 26, Friday	Entrance auditions for Music applicants.
April 29, Monday to May 10, Friday	Practical examinations in Music.
May 20, Monday	Victoria Day. Administrative offices will be closed.
May 16, Thursday to May 24, Friday	Entrance auditions for Music applicants.
June 5, Wednesday to June 8, Friday	Convocations.

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

DALE C. THOMPSON, B.A. (Alta.), Ph.D. (Paris)
Vice-Principal (Planning)

STANLEY B. FROST, B.D., M.Th. (London), Dr. Phil. (Marburg), D.D. (Vic., Tor.), D.Litt., (Mem.)
Vice-Principal (Administration and Professional Affairs)

EIGIL PEDERSEN, B.A. (S.G.W.U.), M.A., Ed.D. (Harv.)
Vice-Principal (Academic)

HELMUT BLUME, Graduate, Staatliche Akademische Hochschule für Musik, Berlin
Dean of the Faculty, Director of the McGill Preparatory School of Music

JOHN H. HOLTON, B.Com. (Toronto)
Secretary of the Board of Governors

ALLAN C. McCOLL, D.F.C., B.Com., C.A.
Director of Finance

COLIN M. McDOUGALL, D.S.O., B.A.
Secretary of Senate and Registrar

PAUL PEDERSEN, B.A. (Sask.), M.M. (Toronto), Ph.D. (Toronto) (sabbatical leave 1973-74)
Chairman, Department of Theory

BRUCE MINORGAN, B.Mus. (U.B.C.), M.A. (Toronto)
Acting Chairman, Department of Theory (1973-74)

RICHARD LAWTON, B.Mus., M.Mus. (Indiana)
Chairman, Department of Performance

DONALD MACKEY, Mus.B. (Toronto)
Chairman, Department of School Music, Secretary of the Faculty (Academic), University Organist, Vice-Director of the McGill Preparatory School of Music

1.2 MEMBERS OF THE FACULTY COUNCIL

THE DEAN
THE PRINCIPAL
THE VICE-PRINCIPAL *(Academic)*
THE VICE-PRINCIPAL *(Administration and Professional Affairs)*
THE CHAIRMAN OF THE DEPARTMENT OF PERFORMANCE
THE CHAIRMAN OF THE DEPARTMENT OF THEORY
THE CHAIRMAN OF THE DEPARTMENT OF SCHOOL MUSIC
THE SECRETARY OF THE FACULTY *(Academic)*
ALL FULL-TIME ACADEMIC STAFF
(Lecturers to Professors)
ALL AREA CHAIRMEN
(Department of Performance)
SIX REPRESENTATIVES-AT-LARGE FROM AMONG PART-TIME STAFF
THE LIBRARIAN
THE CHAIRMAN OF THE DEPARTMENT OF MUSIC IN THE FACULTY OF EDUCATION
PRESIDENT, M.U.S.
PRESIDENT, G.M.S.A.
FIVE UNDERGRADUATE STUDENTS
(Comp.; History; Perf.; School Music; Theory)
THREE GRADUATE STUDENTS
(Comp.; Musicology; Theory)

1.3 FACULTY ADMINISTRATION

555 Sherbrooke St. West, Montreal 111,
Telephone: 392-4501

MISS DIANA ROSS, B.Ed. — *Administrative Secretary (Student Records)*
MISS VERONICA SLOBODIAN — *Dean's Secretary and Office Co-ordinator*
MISS FLORENCE SAMMETT — *Bookkeeper*
MRS. MYRNA FRANK — *Departmental Secretary (Dept. of Performance)*
MRS. ARNEE HOLLOWAY, B.A. — *Departmental Secretary (Dept. of School Music)*
MISS LAUREL WEMETT, B.A. — *Departmental Secretary (Dept. of Theory)*
MRS. MARIA JERABEK — *Concert Secretary*

1.4 FACULTY LIBRARY

555 Sherbrooke St. West, Montreal 111,
Telephone: 392-4530

MISS KATHLEEN M. TOOMEY, B.A., B.Ed., M.L.S. — *Librarian*

1.5 THE McGILL PREPARATORY SCHOOL OF MUSIC

555 Sherbrooke St. West, Montreal 111,
Telephone: 392-4550

PROFESSOR DONALD MACKEY, Mus.B. (Tor.) — *Vice-Director*
PROFESSOR ROSE GOLDBLATT, A.R.C.M. (London) — *Co-ordinator of Local Centres*
MISS DOROTHY FEINBERG — *Secretary*

1.6 STANDING COMMITTEES

CONCERT AND LECTURE COMMITTEE
COMMITTEE ON GRADUATE STUDIES
HONORARY DEGREES COMMITTEE
LIBRARY COMMITTEE
MUSIC EDUCATION LIAISON COMMITTEE
PERFORMANCE AREA COMMITTEES:
Brass — Ensemble — Keyboard — Percussion — Strings — Voice — Woodwinds
SCHOLARSHIP COMMITTEE
STUDENT ADMISSION AND PROGRESS COMMITTEE
THEORY AREA COMMITTEES:
Composition — Ear Training — History — Theory & Analysis

1.7 TEACHING STAFF

Professors —

HELMUT BLUME, Graduate, Staatliche Akademische Hochschule für Musik, Berlin
ALEXANDER BROTT, L.Mus.; Graduate, Juilliard School of Music, N.Y.C.; (Hon.) Mus.Doc. (Chicago Conservatory College); (Hon.) LL.D. (Queen's University, Kingston, Ont.); F.R.S.A.; *Conductor-in-Residence*
MARVIN DUCHOW, Dipl. (Curtis Institute of Music); B.Mus.; B.A. (N.Y.U.); M.A. (Rochester); (Hon.) Mus.Doc. (Chicago Conservatory College)
KELSEY JONES, L.Mus., B.Mus. (Mount Allison); B.Mus., Mus.Doc. (Toronto)

Associate Professors —

EDWARD CULBREATH, B.Sc. (Music) (Mannes College, N.Y.C.), M.Mus. (Yale)
LUCIANO DELLA PERGOLA, Graduate, Royal Conservatory, Bucharest
BENGT HAMBRAEUS, Fil Kand (B.A.), Fil lic (Ph.D.) Uppsala University, Sweden
STEPHEN KONDAKS
ALCIDES LANZA, Graduate, Instituto Torcuato Di Tella, Buenos Aires
DONALD MACKEY, Mus.B., Toronto
BRUCE MATHER, B.Mus., Toronto; M.A., Stanford; Mus. Doc., Toronto
DOROTHY MORTON, Graduate, Conservatoire de Musique de Québec
PAUL PEDERSEN, B.A., Saskatchewan; M.Mus., Ph.D., Toronto (sabbatical leave 1973-74)

Assistant Professors —

OTTO ARMIN
BRIAN CHERNEY, Mus.Bac., Mus.M., Toronto
EDITH DELLA PERGOLA, Graduate, Royal Conservatory, Bucharest
ROSE GOLDBLATT, A.R.C.M., London, England
PAUL HELMER, B.A., Toronto; M.A., Columbia
DONALD HUGHES, L.Mus., B.Mus.
ROBERT F. JONES, B.Mus., New England Conservatory, Mass.; M.F.A., Brandeis, Mass.
PETER KOPROWSKI, Master of Arts (Music), Higher School of Music, Krakow, Poland
RICHARD LAWTON, B.Mus.; M.Mus., Indiana
PAUL LOYONNET, Graduate, Conservatoire de Paris
PAUL MARKS, B.A., U.C.L.A.; M.M., University of Tulsa
KENNETH MEEK, L.Mus.; B.Mus., Toronto
BRUCE MINORGAN, B.Mus., U.B.C.; M.A., Toronto
DONALD PATRIQUIN, A.R.C.C.O.; B.Sc., Bishop's; B.Mus.; M.Mus., Toronto
(leave of absence 1973-74)
EUGENE PLAWUTSKY, B.Mus., M.A. (Toronto)
JOHN REA, B.Mus. (Wayne State U., Mich.), M.Mus. (Toronto)
CHARLES REINER, Graduate, Conservatoire de Genève, Switzerland
WAYNE RIDDELL, B.Mus.

Lecturers —

PIERRE BELUSE, Graduate, Conservatoire de Musique de Québec; Montreal Symphony
BEVERLEY CAVANAGH, B.Mus. (Honours), M.A. (Toronto)
GERALD DANOVITCH, Graduate, Conservatoire de Musique de Québec
ELIZABETH DAWSON, L.Mus., L.R.S.M., London
JOHN GREW, B.Mus. (Mount Allison), M.Mus. (U. of Mich.)
RICHARD HUNT, L.R.A.M., A.R.C.M. (London, England), B.Mus., M.M.A.
WILLIAM KARSTENS, B.Mus., Juilliard School of Music, N.Y.C.
SIDNEY ROSENBERG, Graduate, Curtis Institute of Music; Montreal Symphony
JAN SIMONS
LUBA ZUK, L.Mus.; Graduate, Conservatoire de Musique de Québec

Assistant Staff —

ANTONIN BARTOS, (Graduate, State Conservatory, Prague)
JEANNE BAXTRESSER, B.Mus., Juilliard Montreal Symphony
MARY BLAIKIE, L.Mus., B.Mus.
NEIL CHOTEM
BETTY DOROSCHUK, L.Mus., B.Mus.
STEPHEN FENTOK
ANN GOLDEN, L.Mus., B.Mus.
TED GRIFFITH, Montreal Symphony
DONALD HYDER, A.R.C.T., Montreal Symphony
EMILIO IACURTO, Graduate, Conservatoire de Musique de Québec; Montreal Symphony
SONIA JELINKOVA, L.Mus.; Graduate, Curtis Institute of Music; Montreal Symphony
ABE KESTENBERG
THOMAS LEDERER
CHRISTOPHER LEWIS, B.Mus.; M.M.A.
PIERRETTE MATHER, B.Mus., Laval; B.A., Toronto; Artist's Diploma, Toronto
CARMEN MEHTA
ANTONIO NARDUCCI

PIERRE PERRON, B.Mus.; Specialist's Diploma in Kodály Method, Franz Liszt Academy, Budapest
PENELOPE PETERS, B.Mus.
JEAN PIERRE PINSON
JAMES RANTI, B.Mus., Manhattan School of Music
DAPHNE SANDERCOCK, A.R.C.M., L.R.A.M., London, England
DOROTHY SLAPCOFF, B.Sc. (Music), N.Y.U.
KARL STEINER, Graduate, State Academy, Vienna
JOHN TABER, Montreal Symphony

Visiting Professors —
M. RAYMOND DAVELUY, Directeur, Conservatoire de Musique de Québec à Trois-Rivières *(By special arrangement only)*
KENNETH GILBERT, Graduate, Conservatoire de Québec
DR. HUGH LECAINE, B.Sc., M.Sc., Queen's University; Ph.D., University of Birmingham; Hon.D.Mus., McGill; National Research Council, Ottawa
DR. CLEMENT MORIN, Ancien Doyen de la Faculté de Musique, Université de Montréal

1.8 DEPARTMENTAL CHAIRMEN, ASSISTANTS AND CO-ORDINATORS

1.8.1 DEPARTMENT OF PERFORMANCE

Chairman — PROF. RICHARD LAWTON
Co-ordinator — PROF. CHARLES REINER (Keyboard-Voice)
Co-ordinator — PROF. STEPHEN KONDAKS (Orchestral Instruments)

1.8.2 DEPARTMENT OF SCHOOL MUSIC

Chairman — PROF. DONALD MACKEY
Co-ordinators —
Keyboard/Choral: PROF. WAYNE RIDDELL
Orchestral: PROF. DONALD HUGHES

1.8.3 DEPARTMENT OF THEORY

Chairman — PROF. PAUL PEDERSEN (sabbatical leave 1973-74)
Acting Chairman — PROF. BRUCE MINORGAN (1973-74)
Graduate Committee Chairman — PROF. BRUCE MINORGAN
Co-ordinators —
Composition: PROF. BRUCE MATHER
Ear Training: MISS LUBA ZUK
History: PROF. BRUCE MINORGAN
Theory & Analysis: PROF. BRIAN CHERNEY

1.8.4 ELECTRONIC MUSIC STUDIO

Director — PROF. PAUL PEDERSEN (sabbatical leave 1973-74)
Acting Joint Directors — PROF. BENGT HAMBRAEUS and PROF. ALCIDES LANZA
Visiting Professor — PROF. ISTVAN ANHALT, Head, Music Department, Queen's University

2 FACULTY EVENTS 1972-73

1972

Sept. 28	Off-Campus Concert	Jazz Band, directed by Gerry Danovitch, at the University of Toronto.
Oct. 6	Faculty Friday	Otto Armin, violin; Marie-Paule Armin, piano. Works by Mozart, Beethoven, Schumann, Bloch, Saint-Saëns.
	Lunch Concert	Student Orchestra Strings — *Brandenburg Concerto, No. 3.*
Oct. 13	Faculty Friday	Graduation Recital: Jacqueline Lalinec, piano. Works by Bach, Brahms, Fauré, Prokofieff.
Oct. 20	Faculty Friday	Louisa Budd, soprano; Mikael Eliasen, piano. Works by Mozart, Berg, R. Strauss, Turina.
Oct. 27	Faculty Friday	Donelda Hunter, flute; Edward Culbreath, cello; Charles Reiner, piano. Works by Bach, Reinecke, Weber, Prokofieff.
Nov. 2	Off-Campus Concert	Student String Quartet, at the Musée d'Art Contemporain for Alumnae Society's "Evening with the Arts"
Nov. 3	Faculty Friday	Faculty Student Orchestra, directed by Eugene Plawutsky. Works by Varèse, Handel, Villa-Lobos, Foss.
Nov. 5	Faculty Concert	Faculty Student Orchestra — matinee concert.
Nov. 6	Lunch Concert	Student String Ensemble, directed by Kerry Stratton.
Nov. 7	Off-Campus Concert	Student String Quartet and "Metamusic" electronic music ensemble. McGill Young Alumni evening — "Electronic Strings".
Nov. 10	Faculty Friday	Faculty Student Wind Ensemble, directed by Donald Hughes. Works by Gordon Jacob, Burt Bacharach.
Nov. 11	Faculty Concert	Opera Workshop, directed by Edith and Luciano Della Pergola. Excerpts by Mozart, Donizetti, Rossini.
Nov. 15	Lunch Concert	Student Band and Chamber Orchestra, directed by Donald Hughes and Stephen Kondaks.
	Special Lecture	Laszlo Vikir on Kodály.
	Faculty Concert	Jazz Band, directed by Gerry Danovitch.
Nov. 17	Faculty Friday	Sri Rahul, Indian Sitar Music.
Nov. 22	Student Concert	Metamusic, electronic music ensemble.
Nov. 29	Faculty Concert	Concert Band, directed by Donald Hughes.
Dec. 1	Faculty Friday	New Armin String Quartet. Works by Mozart, Debussy, Beethoven.
Dec. 5	Student Concert	Student Wind Ensemble. Works by Reicha, C.P.E. Bach, Mozart.
	Off-Campus Concert	Opera Workshop, directed by Edith and Luciano Della Pergola. Excerpts by Mozart, Donizetti, Rossini, performed for the Women's Arts Society.
Dec. 7	Lunch Concert	Carolyn Christie, Chris Ertell, flutes; Tim Khaner, cello. Works by C.P.E. Bach.
Dec. 8	Faculty Friday	Concert Choir, directed by Wayne Riddell. Works by Palestrina, Berio, de Morales, Bach.
Dec. 12	Lunch Concert	Guitar Workshop, directed by Stephen Fentok. Works by Handel, Duarte, Gragnani, Granados.
	Special Concert	Concert Band and Student String Ensembles. Women Associates of McGill: invitations extended to Sir George Williams University, Université de Montréal, and Université du Québec à Montréal.

Dec. 13	Lunch Concert	Contemporary Chamber Music Ensemble, directed by Eugene Plawutsky. Works by Stravinsky, Varèse, John Beckwith.
	Faculty Concert	Concert Band, directed by Donald Hughes.
Dec. 14	Lunch Concert	Composers' Workshop. Works by John Burke, Jay Reise, Michel Longtin, Brian Bessner, Alain Noreau.
Dec. 15	Lunch Concert	James E. Braid, violin; Berta Grinhauz, piano. Works by Brahms.
	Faculty Friday	Gilles Manny, piano (of the Faculty of Music of Université de Montréal). Works by Schubert, Somers, Bartók.
Dec. 16	Faculty Concert	Faculty Student Orchestra, directed by Eugene Plawutsky. Prokofieff's *"Peter and the Wolf."* Narrator: Dave Nichols of CBMT — matinee.
	Faculty Concert	Opera Workshop, directed by Edith and Luciano Della Pergola. Excerpts by Weber, Massenet, Bizet.
Dec. 17	Faculty Concert	Faculty Student Orchestra, directed by Eugene Plawutsky. Prokofieff's *"Peter and the Wolf."* French version. Narrator: Pierre Pascau of CBMT — matinee.
Dec. 20	Student Concert	Chamber Music for Woodwinds. Works by Rossini, Danzi, Mozart.
1973		
Jan. 12	Faculty Friday	Otto Armin, violin. Six Solos for Unaccompanied Violin by J. S. Bach (First Half).
Jan. 19	Special Lecture	Frederic Rzewski. "Structure and Freedom in Composition for Live Electronic Media."
	Faculty Friday	Otto Armin, violin. Six Solos for Unaccompanied Violin by J. S. Bach (Second Half).
Jan. 21	Faculty Concert	An Evening of 20th Century Music. Works by S. Barber, Kelsey Jones, Mickey Cohen.
Jan. 25	Lunch Concert	Student Orchestra, directed by Eugene Plawutsky. *Symphony No. 6*, Tchaikovsky.
Jan. 26	Faculty Friday	Chilingirian String Quartet, from England. Works by Mozart, Rawsthorne, Beethoven.
Jan. 27	Faculty Concert	Contemporary Music, Student Ensembles, directed by Eugene Plawutsky; and the Opera Workshop, directed by Edith and Luciano Della Pergola — Montreal premiere: *"The Stronger,"* one-act opera by Hugo Weisgall.
Jan. 31	Lunch Concert	Faculty Choir, directed by Wayne Riddell. Works by Vivaldi, Donati.
Feb. 1	Off-Campus Concert	Concert Band, directed by Donald Hughes, at Outremont High School.
Feb. 5	Lunch Concert	Student Orchestra, directed by Eugene Plawutsky.
Feb. 7	Faculty Concert	Concert Choir, directed by Wayne Riddell. 16th century chansons and madrigals. Works by Mozart, Britten, Vaughan-Williams.
Feb. 9	Faculty Friday	Otto Armin, violin; Paul Helmer, piano. Sonatas by Prokofieff, Bartók, Ives, Mozart.
Feb. 10	Faculty Concert	Opera Workshop, directed by Edith and Luciano Della Pergola. Excerpts by Mozart, Puccini, Verdi, Moussorgsky.
Feb. 16	Faculty Friday	Concert Band and Wind Ensemble, directed by Donald Hughes. Works by Holst, Emed, Rimsky-Korsakov, Mozart, L. Anderson.
Feb. 21	Lunch Concert	Electronic Music — audience participation.
	Student Concert	"Metamusic," electronic music ensemble.
Feb. 23	Faculty Friday	Betty Doroschuk, soprano. A survey of English Song from Byrd to Britten.

Feb. 25	Special Concert	CBC Celebrity Series: A. Garami, violin and D. Bartlett, piano. Works by Brahms, Prokofieff, R. Strauss, Szymanowsky, Ravel, Milhaud.
Feb. 26	Lecture Series	Prof. C. Wolff, Dartmouth College. "Meditative & Political Elements in Recent Music."
Mar. 2 & 3	Faculty Friday	Opera Workshop, directed by Edith and Luciano Della Pergola. *"La cambiale di matrimonio"* by Rossini — full opera.
Mar. 5	Lecture Series	Prof. J. J. Nattiez, Université de Montréal. "What is Musical Semiotics?"
Mar. 7	Student Concert	Student Chamber Ensemble, Kerry Stratton, conductor. Works by Mozart, Cimarosa, Handel, Stratton.
Mar. 9	Faculty Friday	Dorothy Morton, Esther Master, pianos; Sabina Ratner, lecturer. Saint-Saëns Recital.
Mar. 11	Faculty Concert	"Array" Canadian instrumental group from Toronto. Contemporary Canadian chamber music.
Mar. 12	Special Concert	CBC Celebrity Series: Diane Walsh, piano. Works by Bach, Bartók, Chopin, Schumann.
	Lecture Series	Prof. Serge Garant, Université de Montréal. "Offrande II."
Mar. 16	Faculty Friday	Mario Duchesnes, Jean Baxtresser, flutes; Mireille Lagacé, harpsichord. Works by J. S. Bach.
Mar. 17	Faculty Concert	Notre Dame University Concert Band.
Mar. 19	Lecture Series	Beverley Cavanagh, University of Toronto. "Acculturation in the Music of the Netsilik Eskimo."
Mar. 22	Lunch Concert	Kathleen Anderson, soprano; Lynn Eaton, piano. Works by Stravinsky. Student Ensemble, Arlette Chené, conductor. Works by Britten.
Mar. 26	Student Concert	McGill Jazz Workshop, directed by Gerry Danovitch.
Mar. 27	Off-Campus Concert	Opera Workshop directed by Edith and Luciano Della Pergola. Excerpts by Rossini, Halevy, Nicolai, performed for Sisterhood at Temple Beth Sholom.
Mar. 28	Lunch Concert	Experimental Sound Environment — *White Noise Simulation No. 1* presented by Members of "Metamusic."
Mar. 29	Student Concert	Ellen Wong, Judy Hoenich, duo-pianists. Works by Bach, Debussy, Brahms, Infante, Matton.
Mar. 30	Faculty Friday	Edward Culbreath, cello. J. S. Bach *Suites for Cello Solo.* (First Half).
Apr. 2	Lecture Series	Prof. Chou Wen Chung, Columbia University. "The Music of Varèse."
	Lunch Concert	Music for Flute: A Tribute to Hindemith. Carolyn Christie, Vicki Woolsey, flutes; Barbara Gelhar, piano.
Apr. 3	Student Concert	Piano Ensemble Class, students of Prof. Charles Reiner.
Apr. 4	Lunch Concert	Music for Flute and Clarinet. Carolyn Christie, flute; Richard Chodolak, clarinet. Works by H. Pousseur, M. Davidovsky, B. Mather, H. Villa-Lobos.
Apr. 5	Faculty Friday	Edward Culbreath, cello: J. S. Bach *Suites for Cello Solo.* (Second Half).
Apr. 6	Faculty Concert	Student Orchestra, directed by Eugene Plawutsky. Michael Kara, viola. Shumann: *Symphony No. 4,* Walton: *Viola Concerto.*
	Faculty Friday	Bengt Hambraeus, organ. Works by Reger, Scriabin, Cabanilles.

FACULTY OF MUSIC

Apr. 7	Student Concert	Opera Workshop, directed by Edith and Luciano Della Pergola. Excerpts by Verdi, Rossini, Donizetti.
Apr. 8	Student Concert	Wind Ensemble, directed by Donald Hughes, with guest band from Beaconsfield High School, directed by Dr. Y. Emed.
Apr. 9	Lecture Series	Prof. Rika Maniates, University of Toronto. "Mannerism as the Road to Avant-Garde Music Style: 1530-1630."
Apr. 11	Faculty Concert	Saxophone Ensembles, directed by Gerry Danovitch.
Apr. 12	Lunch Concert	McGill Student Composers.
Apr. 13	Faculty Friday	Lyric Arts Trio: Mary Morrison, soprano; Marion Ross, piano; Robert Aitken, flute. Works by McGill Faculty of Music staff composers.
Apr. 15	Faculty Concert	Palm Sunday Concert at the Church of St. Andrew and St. Paul. Concert Choir, directed by Wayne Riddell. Works by Haydn and Vaughan-Williams.
Apr. 16	Lunch Concert	Brahms Concert. Hannah Brickman, Tom Mirhady, cellos; Debbie Carroll, Marise Fournier, pianos; Hélène Ducharme, violin.
Apr. 17	Lunch Concert	Concert of 20th Century Chamber Music. Pamela Jones, piano assisted by Robert Jones, piano and Beverly Schroeder, violin. Works by Stravinsky, Webern, Jones, Schoenberg.
Apr. 19	Lunch Concert	Pot-Pourri Recital by students of the Faculty of Music.
Apr. 24	Student Concert	Piano Recital by students of Elizabeth Dawson.
Apr. 25	Faculty Concert	"Metamusic," electronic music ensemble.
Apr. 26	Faculty Concert	Directed audience participation in improvisations, under the direction of Metamusic members and others.
Apr. 27	Student Concert	Joint Piano Recital by Andrew Li and Avril Cici and Ensemble Class — students of Elizabeth Dawson.
May 2	Student Concert	Piano Recital by students of Luba Zuk.
May 3	Faculty Concert	Armas Maiste, piano. Works by Beethoven, Debussy, Scriabin, Brahms; An Exploration of Jazz Styles from "Be-Bop" to Contemporary.
May 11	Student Concert	Graduation Recital: William Harrison, bassoon. Works by Weber, Mozart, Hindemith, Poulenc.
May 18	Student Concert	Graduation Recital: Ellen Cash, flute. Works by Poulenc, Kennan, Bartók, Marcello, Mozart.
May 25	Student Concert	Graduation Recital: Debbie Carroll, piano. Works by Mozart, Schumann, Debussy, Ginastera.

3 GENERAL INFORMATION

3.1 SCHOLARSHIPS 1972-73

3.1.1
MARY RUTH ALLAN
HARRIET J. PALTIEL

3.1.2
KATHLEEN ANDERSON
BRYAN J. BESSNER
BRIAN BLACK
NORMAND J. BOUCHER
JOHN J. BURKE
CAROLYN R. CHRISTIE
CYNTHIA M. DOWSE
MICHELLE M. FILLION
(James Eccles Scholar)
JOAN C. FOSTER
PETER G. FREEMAN
HASMIG INJEJIKIAN
WANDA KALUZNY
MICHEL KOZLOVSKY
BARRY LENSON
BELLA LEVINE
FRANCES LEVINE
REISA LIPSZYC
OLGA MALYSHKO
PENELOPE A. PAPPAS
JOHN PASQUINI
PETER ROTHFARB
JOSLYNNE L. SEALEY
SYLVIE TOUCHETTE
FRANCINE TREMBLAY
AILSA WEIR

3.1.3
MICHELLE ARPIN

3.1.4
KATHLEEN ANDERSON
MICHELLE FILLION
JOAN FOSTER
IONA CORBER
TRACY KIMMEL

3.1.5
DEBBIE CARROLL
FRANCES LEVINE

3.1.6
WILLIAM BOWLES

3.1.7
BARBARA GELHAR
RICHARD HOENICH

3.1.8
LOIS BURNSTUN

UNIVERSITY ENTRANCE SCHOLARSHIPS
EI
EI

UNIVERSITY SCHOLARSHIPS
Perf. Voice U1 — Major
Composition U3 — Honours — Renewal
Perf. Kybd. E2 — Major — Renewal
Composition U1 — Honours
Composition U2 — Honours
Perf. Orch. E2 — Major — Renewal
Perf. Kybd. U2 — Major

Music History U3 — Honours
School Music Orch. E2 — Major
School Music Orch. U2 — Major — Renewal
School Music Chor. E2 — Major
Perf. Kybd. U1 — Major
Perf. Cond. U2 — Major
Perf. Voice U3 — Major
School Music Kybd. U1 — Major — Renewal
Perf. Kybd. U1 — Major — Renewal
School Music Orch. U2 — Major
Music History U2 — Honours — Renewal
School Music Orch. E2 — Major
Composition U1 — Major
Perf. Orch. U2 — Major
Perf. Voice U2 — Major — Renewal
Perf. Kybd. E2 — Major
School Music Kybd. U1 — Major
Perf. Orch. U2 — Major

NARCISSA FARRAND SCHOLARSHIP
Theory U2 — Honours — Renewal

ANONYMOUS DONOR'S BURSARY
Perf. Voice U1 — Major
History U3 — Honours
School Music Orch. E2 — Major
Junior Partial
Junior Partial

ELLEN BALLON PIANO SCHOLARSHIP
Perf. Kybd. U3 — Major
Perf. Kybd. U1 — Major

HECTOR BERLIOZ PRIZE
School Music Orch. U1 — Major

MARGUERITE CHOQUETTE PIANO SCHOLARSHIP
Perf. Kybd. E2 — Major
E1

DONALDA PRIZE
Perf. Voice U2 — Major

3.1.9
KATHLEEN ANDERSON — **PAULINE DONALDA MEMORIAL AWARD** — Perf. Voice U1 — Major — Renewal
SARAH FEATHERMAN — Perf. Voice U2 — Major

3.1.10
NORMAND BOUCHER — **FONDATION LES AMIS DE L'ART BURSARY** — Composition U1 — Honours

3.1.11
PETER O'LOUGHLIN — **CONSTANCE HAMILTON PRIZE** — School Music Orch. E2 — Major

3.1.12
BETTY-JO SEATH — **DR. D. M. HERBERT PRIZE** — School Music Chor. U2 — Major

3.1.13
CAROL ALBERT — **BERNARD ISSENMAN MEMORIAL BURSARY** — School Music Orch. U1 — Major

3.1.14
COLIN RYAN — **ETHEL JAMIESON IVEY SCHOLARSHIP** — Perf. Orch. E2 — Major — Renewal

3.1.15
MICHAEL PRESCESKY — **LAKESHORE ORGANISTS BURSARY** — Perf. Kybd. U3 — Major
ALAN STEWART — Perf. Kybd. U2 — Major

3.1.16
JOHN BURKE — **RAYMOND LALIBERTE PRIZE** — Composition U2 — Honours
RICHARD KIDD — Composition E2 — Honours

3.1.17
ROBERT BACHELOR — **LILY LAUTERMAN MEMORIAL BURSARY** — Theory U1 — Honours

3.1.18
ELLEN GRANT — **SIR CHARLES LINDSAY PRIZE** — Perf. Orch. U3 — Major

3.1.19
PETER FREEMAN — **SIR WILLIAM MacDONALD MEMORIAL SCHOLARSHIP** — School Music Orch. U2 —Major — Renewal
CATHERINE WALKER — Perf. Orch. U2 — Major — Renewal

3.1.20
RITA ABROMAITIS-VILCINSKAS — **MAGOR MEMORIAL SCHOLARSHIP** — School Music Kybd. U3 — Major — Renewal
ARLETTE CHENÉ — Perf. Cond. U1 — Major — Renewal
WANDA KALUZNY — Perf. Kybd. U1 — Major
BELLA LEVINE — School Music Kybd. U1 — Major — Renewal
PETER ROTHFARB — Perf. Orch. U2 — Major

3.1.21
ELIZABETH AVERY — **MARTLET AWARD** — Perf. Orch. U1 — Major
SARAH FEATHERMAN — Perf. Voice U2 — Major
TIM KHANER — Perf. Orch. E2 — Major
OLGA MALYSHKO — History U2 — Honours — Renewal
PENNY PAPPAS — School Music Orch. E2 — Major
KARL RAUDSEPP — Theory U1 — Honours
VERONIQUE ROBERT — Perf. Orch. U1 — Major
DACE STAUVERS — Composition E2 — Honours
MICHAEL WOOD — L.Mus., Instr. 2

3.1.22
JOHN BURKE — **SIR WILLIAM PETERSON MEMORIAL SCHOLARSHIP** — Composition U2 — Honours
REISA LIPSZYC — School Music Orch. U2 — Major

3.1.23
LINDA WOLTAL — **H. R. RESSLER MEMORIAL VIOLIN SCHOLARSHIP** — Perf. Orch. U1 — Major

3.1.24
PAMELA HOMZY — **ARTHUR ROMANO BURSARY** — School Music Orch. U2 — Major

3.1.25 **LAURIE ROBIN SLAPCOFF MEMORIAL AWARD**

BARRY LENSON — Perf. Voice U3 — Major
WALERI HEFTER — Opera Workshop
MARIANA PAUNOVA — Opera Workshop

3.1.26 **CONSTANCE WILLEY PRIZE**

VICTOR ERIC COBHAM — Perf. Kybd. U2 — Major

3.1.27 **WILLIAM A. WEIR BURSARY**

MICHEL KOZLOVSKY — Perf. Cond. U2 — Major

3.2 GRADUATES 1972-73

3.2.1 **FALL CONVOCATION, 1972**

Bachelor of Music Degree

CLARK, DAVID RALPH JOHN (Major in Performance), *Peterboro, Ont.*
Distinction in Saxophone
DELAVAN, HARRIET, L.Mus. (Major in School Music), *Skaneateles, N.Y.*
GREEN, THOMAS RICHARD (Honours in Music History) *Windsor, Ont.*
University Scholar; High Distinction
GRUNDEEN, PAULETTE GAIL (Major in Performance — Organ), *Estevan, Sask.*
Distinction
HOENICH, JUDITH (Major in Performance — Piano), *St. Laurent*
University Scholar; Distinction
KATER, WOLFGANG SEBASTIAN (Major in Organology), *Pierrefonds*
LALINEC, JACQUELINE (Major in Performance), *Paris, France*
High Distinction in Piano
MAISTE, ARMAS (Major in Performance), *Tallinn, Estonia*
High Distinction in Piano
STEVEN, DONALD ANSTEY (Honours in Composition), *Montreal*
University Scholar; High Distinction
WILSON, DAVID DALE (Major in Performance — Piano), *Crystal Beach, Ont.*

3.2.2 **SPRING CONVOCATION, 1973**

Licentiate of Music Diploma in Performance

SEGALL, JACK, *Chomedey, Laval*
Distinction in Violin
HAGUE, RICHARD THOMAS McLEOD, *Montreal*
Distinction in Voice

Concert Diploma in Performance

QUINTON, KAREN, *St. John's, Nfld.*
Distinction in Piano

Bachelor of Music Degree

ABROMAITIS-VILCINSKAS, RITA, *Montreal*
Major in School Music
BEINAROVICS, IRENE, *Montreal*
Major in School Music
BESSNER, BRYAN JEFFREY, *Montreal*
Major in Composition; Distinction; University Scholar
BINSSE, PETER, *Montreal*
Major in School Music
BLECHTA, RICHARD MARK, *Scarsdale, N.Y.*
Major in School Music
CARR, FRANK NELSON, *Sutton, Que.*
Major in School Music

FACULTY OF MUSIC

CARROLL, DEBBIE, *Montreal*
Major in Performance; High Distinction in Piano
DWORKIN, SIDNEY, *Montreal*
Major in School Music
FILLION, MICHELLE MARIE, *Montreal*
Honours in Music History; High Distinction; University Scholar; James Eccles Scholar
GAGNON, CLAIRE ROUSSEAU, *Montreal*
Major in School Music
GARA, JULIE, *Montreal*
Major in School Music
GLOBUS, PAUL MARVIN, *Beaconsfield*
Major in Performance; Distinction in Clarinet
GRANT, ELLEN CASH, L.Mus., *Montreal*
Major in Performance; Distinction in Flute
HARRIS, HOLLY PAMELA, *St. John's, Nfld.*
Major in School Music
HARRISON, WILLIAM ALAN, *Woodstock, N.B.*
Major in Performance; High Distinction in Bassoon
HEWLINGS, TIMOTHY GORDON, *Montreal*
Honours in Theory
KIRWAN, JO ANNE ELIZABETH, *Montreal*
Major in School Music
KNIGHT, DOUGLAS JOHN, *Montreal*
Major in Performance; Distinction in Piano
LAMOUREUX, AIME, *Montreal*
Major in Performance (Guitar); Distinction
LANDRY, BARBARA SUZANNE, *Montreal*
Major in Performance (Piano)
LENSON, BARRY, *Nutley, N.J.*
Major in Performance (Voice); University Scholar
McGIFFIN, GRANT EDWARD, *Montreal*
Major in Composition
MARCHAND, JACQUES, *Rouyn, Que.*
Major in Composition
MORENS, ANDREW THOMAS, *Montreal*
Major in School Music
OLENSKI, PAUL EDWARD, *Brantford, Ont.*
Major in Theory with special studies in the neurophysiology of musical perception and performance.
PARIZEAU, ALICE POULIN, *Henryville, Que.*
Major in School Music
POTASHNIK, CAROL, *Montreal*
Major in School Music
REININGER, SUSAN, *Montreal*
Major in Performance (Conducting)
RILEY, JOAN MILDRED, *Montreal*
Major in School Music
RINGLER, DENNIS RONALD, *Streetsville, Ont.*
Major in School Music
SIEPRAWSKI, CHRISTINA, *Montreal*
Major in School Music
van ORANJE, CHRISTINA, *Soestdyk, Netherlands*
Major in Elementary School Music

3.3 DEGREES AND DIPLOMAS OFFERED

3.3.1 DEGREE OF BACHELOR OF MUSIC (B.Mus.)

The degree of Bachelor of Music can be obtained in any one of five major fields:

Composition (Major and Honours) The curriculum in Composition is designed for those students whose interest and talent lie in the field of creative music.

History (Major and Honours) The curriculum in History is intended for those interested in the scholarly disciplines of music and as a preparation for subsequent concentration in musicology.

School Music This program covers the area of music in the schools and provides the practical and theoretical training required by those who are planning a career as music teachers.

Performance The degree program in Performance is available to those wishing to combine a practical major (all Instruments, Voice, or Conducting) with substantial studies in theoretical and academic subjects.

Theory (Honours only) This program is designed for those who wish to specialize in some area of music theory. Interdisciplinary studies relating music with other arts and the sciences are available.

Programs normally require three years of study following the Quebec Diploma of Collegial Studies or four years of study following secondary school elsewhere.

3.3.2 DEGREE OF MASTER OF MUSICAL ARTS (M.M.A.)

The degree of Master of Musical Arts, which the Faculty of Music offers in conjunction with the Faculty of Graduate Studies and Research, can be obtained in one of three fields:

Composition This program is designed for those planning on a career as professional composers and/or teachers of composition and allied subjects. It also prepares the student for doctoral studies in this field.

Musicology This program provides training in the techniques of musicological research and prepares the student for doctoral studies in musicology.

Theory This program is designed for those who wish to do research in some specialized area of music theory. Interdisciplinary studies relating music with other arts and the sciences are encouraged. The program also prepares the student for doctoral studies in these areas.

For details of these graduate programs, please consult the syllabus of the Faculty of Graduate Studies and Research.

3.3.3 DIPLOMA OF LICENTIATE OF MUSIC (L.Mus.)

The diploma of Licentiate of Music can be obtained through a three-year program specially designed for those instrumentalists and singers who wish to concentrate on the practical subject of their choice while limiting their theoretical studies to basic areas in History, Theory and Ear Training.

3.3.4 THE CONCERT DIPLOMA

This is a post-Licentiate diploma designed as a two-year course and available only to specially gifted instrumentalists and singers who have the proven talent and capacity for a professional career as performers. The Concert Diploma is offered in Piano, Organ, Harpsichord, Violin, Cello, Flute, Clarinet, Saxophone and Voice.

3.4 MUSIC CREDIT OPTIONS IN THE FACULTIES OF ARTS AND SCIENCE

The Faculty of Music offers three groups of courses that may be taken for credit by students in the Faculties of Arts and Science. One group includes courses that deal with music theory and the history of music and are part of the music undergraduate curriculum (Theory, History Survey and Music History electives). These courses may be taken only by those who have offered Music as a Matriculation subject or have the theoretical and practical equivalent.

The second group of courses represents Ensemble classes open to those students who are advanced players of orchestral instruments (Strings, Winds) or singers: Chamber Music, Concert Band, Concert Choir, Opera Workshop, Symphony Orchestra. Admission is by audition only.

The other music credit options (non-professional) are listed in the current calendar of the Faculties of Arts and Science.

3.5 OPTIONS FOR PARTIALS

Individuals wishing to take one or more courses without registering in a degree or diploma program may be admitted as Senior Partials if they possess the necessary requirements for admission to the course(s) concerned.

Persons who are advanced instrumentalists (strings, winds, harp, percussion) or experienced singers may become regular members of the Faculty Orchestra, Choir, or Band, at no cost to the extent that space is available. Consult the Chairman of the Department of Performance.

3.6 McGILL PREPARATORY SCHOOL OF MUSIC

For information on function, policy, courses, examination requirements for Grade Certificates, admission, fees, Local Centres, etc., please consult the booklet of the McGill Preparatory School of Music, obtainable at the Faculty Office, 555 Sherbrooke Street West, Montreal 111.

3.7 ADMISSION TO THE FACULTY OF MUSIC

All inquiries regarding admission to either the degree or diploma programs should be directed to the Dean of the Faculty of Music, McGill University, 555 Sherbrooke Street West, Montreal 111.

In order to ensure early consideration, applications should be made by March 1. However, applications received after this date will be considered, provided there still remains space for admission.

Applications should be accompanied by the non-refundable application fee of $15, an official transcript of the applicant's high school record up to the December preceding his September entry, and a detailed description of the applicant's musical background and training including photostats of diplomas, certificates, and/or transcripts.

3.7.1 ADMISSION REQUIREMENTS (DEGREE PROGRAMS)

The normal admission requirement to the B.Mus. degree programs is the Quebec Diploma of Collegial Studies (Music Concentration) with a Practical Level equivalent to McGill Preparatory Collegial I and Theory/Ear Training Collegial I. Graduates of secondary schools outside of Quebec will also be considered.

All applicants must perform an audition in their main practical subject of approximately 15 minutes' duration, either live or on tape. For dates of entrance auditions, please refer to page 2.

Applicants seeking exemption from program requirements on the basis of work done at other universities must have an official transcript of their record submitted to the Dean. Transfer students will be required to sit placement examinations in Ear Training, History, and Theory, in early September to determine their course levels.

For S.A.C.U. or C.E.E.B. tests please turn to Section 3.7.4.

3.7.2 APPROXIMATE EQUIVALENTS TO McGILL PREPARATORY GRADES

	Practical Grade			Theory Grade	Ear Training Grade
McGill University (Old course no.) (New course no.)	(11) Collegial II	(10) Collegial I	(9) Secondary Complete	(9) Secondary Complete	(9) Secondary Complete
Conservatoire de Québec	Cycle II 2ième partie	Cycle II 1ière partie	Cycle I (complete)	Cycle II (complete)	Cycle II (complete)
Laval	Bacc. I (CEGEP II)	(CEGEP I)	Lauréat	Lauréat	Lauréat
Vincent d'Indy U. of Sherbrooke	Lauréat II (CEGEP II)	Lauréat I (CEGEP I)	Supérieur	Supérieur	Supérieur
Ecole Normale de Musique, U. of Quebec	Lauréat II (CEGEP II)	Lauréat I (CEGEP I)	Supérieur	Supérieur	Supérieur
Dawson	CEGEP II	CEGEP I			
Marianopolis	CEGEP II	CEGEP I			
St. Laurent	CEGEP II	CEGEP I			
Vanier	CEGEP II	CEGEP I			
Toronto Conservatory	10	9	8	II	Included in practical examination
Western Board	10	9	8	5	
Mount Allison	10	9	8	5	
Associated Board of the Royal Schools of Music	8	7	6	6	

N.B. High school students who wish to take music as a junior matriculation subject, please note that completion of McGill Preparatory Secondary Level (Grade 9), Theory and Ear Training, as well as the practical subjects, are recognized as a matriculation credit by the Quebec Department of Education.

3.7.3 PIANO PROFICIENCY

All candidates admitted to the degree programs of the Faculty of Music should be prepared to demonstrate piano proficiency equivalent to that of McGill Secondary Level I (grade 7) when they register for their first term.

Those who are unable to do so will be registered with Probationary status, and may enrol for piano instruction at a separate fee, through the Preparatory School. At the end of one year, their cases will be reviewed by the Student Admission and Progress Committee.

For a description of this level in piano, please consult the syllabus of the Preparatory School of Music of McGill University.

3.7.4 SACU and/or C.E.E.B. TESTS

Students in Canadian High Schools must write the tests of the Service for Admission to College and University (SACU), available in English and French. Application forms and information concerning these tests may be obtained through the schools or from SACU Test Administration, 151 Slater Street, Ottawa 4, Ontario.

Students from the United States must write College Entrance Examination Board tests; the two scholastic aptitude tests, the English composition test and any two other achievement tests. Students may obtain information about the tests, testing centres, etc., by writing to: The College Entrance Examination Board, Box 592, Princeton, New Jersey 08540, or: The College Entrance Examination Board, Box 1025, Berkeley, California 94701.

Students from overseas are not required to write the C.E.E.B. or SACU tests, and their applications are judged on their records in the national examinations of the country in which they have studied.

3.7.5 ADMISSION REQUIREMENTS (DIPLOMA PROGRAMS)

Licentiate of Music

In order to qualify for admission to the Licentiate program of the Faculty of Music, the candidate must produce a High School Leaving Certificate (eight academic subjects). His music qualifications must be McGill Preparatory Collegial Level II (Grade 11) (Instrument or Voice) and McGill Theory and Ear Training Secondary Level complete (Grade 9), or equivalent. An entrance audition is also required.

The SACU and/or C.E.E.B. tests are not required for admission to the Licentiate diploma program.

Concert Diploma

In order to qualify for admission to the Concert Diploma program, the candidate must have the Licentiate diploma of the McGill Faculty of Music or its equivalent and must pass an audition in his chosen subject to satisfy the panel that he has the talent for a professional career as a concert performer.

3.8 ACADEMIC CREDIT TRANSFER AGREEMENT

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal, or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement* for details.

3.9 CATEGORIES OF STUDENTS

Students are registered as:

a) **Full-Time:** those enrolled in a degree program and taking 24 or more credits each year, or in a diploma program taking 18 or more credits each year.

b) **Part-Time:** those enrolled in a degree or diploma program, but who, because of special circumstances, are unable to take a full-time load as defined above.

c) **Special:** those who are not registered as proceeding towards a degree or diploma, but are permitted to take one or more courses. Special students in practical subjects may not register for less than one term (14 weeks) and must notify the Secretary of the Department of Performance at least two weeks before the end of the term if they wish to continue lessons for another term.

d) **Visiting:** those proceeding towards a degree at another university, but who are taking a course or more at McGill for credit towards their home university's program.

Students enrolled in degree and diploma programs are classified as follows:

B.Mus degree —

CEGEP II (E2) Those who are completing the requirements for the College Equivalent program (now being phased out).

U1 Those who are registered for their first year of the Bachelor of Music degree at the University level (post-CEGEP).

U2 All students who are beyond the U1 level, but are not yet in their final year.

U3 Students registered for a selection of courses, which, if successfully completed, will fulfill the requirements of their program.

L.Mus. or Concert Diploma —

D1 Those who are registered for their first year of diploma study at the University level.

D2 See "U2" above.

D3 See "U3" above.

3.10 LENGTH OF SESSION

The session extends from September to April, made up two terms. Certain regular courses are offered during the Summer Session.

3.11 FEES

N.B. The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require.

3.11.1 APPLICATION FEE

Students applying to McGill for the first time must submit a non-refundable $15 fee with their application. Those who are transferring to the Music Faculty from within McGill are not required to pay this fee.

3.11.2 TUITION FEES

REGULAR STUDENTS

B.Mus. degree in:

Composition	$638 per session
History	638 per session
Performance	638 per session
School Music	638 per session
N.B. College-equivalent (Quebec students only)	460 per session

Diploma courses for the:

Licentiate of Music	$595 per session
Concert Diploma	655 per session

These annual fees for regular students also cover fees for the degree or diploma examinations at the end of the session as well as fees for library and athletic privileges, the latter including Physical Education, Student Health Service, and admission to home games under

the control of the Athletics Board, except those of the senior football and hockey teams. The above fees include the Student Society fee.

Individual instruction in practical subjects for full-time undergraduates is included in the above tuition fees as follows:

I B.Mus. School Music: History: Composition: Theory:
Practical Concentration
Maximum 3 years, one hour per week for 28 weeks

II B.Mus. Performance:
Practical Major
Maximum 4 years, 1 hour per week for 28 weeks

III L.Mus. Performance:
Practical Major
Maximum 3 years, 1 hour per week for 28 weeks

IV Concert Diploma:
Practical Major
Maximum 2 years, 1½ hours per week for 28 weeks

However, an additional Special fee will be charged in the case of:

a) Full-time students majoring in School Music, Composition, History or Theory, and wishing to add a major in Performance (B.Mus., L.Mus., Concert Diploma).

b) Full-time students wishing to take individual instruction in practical subjects other than those required in their curricula.

c) Full-time students majoring in Performance and wishing to add a major in School Music, Composition, History or Theory.

N.B. A full-time student (other than a Performance Major) wishing to take individual instruction in any practical subject with teachers other than those available to him in the Faculty may do so, at his own expense. He may not, however, claim a refund from his annual tuition fee nor instruction in a substitute practical subject. Students majoring in Performance are required to study under teachers on the staff of the Faculty of Music.

PART-TIME AND SPECIAL STUDENTS

Fees for Theoretical, Elective, and Ensemble courses are as follows:

Term courses	$ 85
Sessional courses	160

Practical courses:

All instruments and Voice	
(14 one-hour lessons) per term	$190
(14 half-hour lessons) per term	95

Student Society Fees:

Part-time and Special students who are

(a) taking 3 or more courses —	
Student Services	$27
Students' Society	27
Total	$54
(b) if taking less than 3 courses —	
Students' Society	$10
or, if desiring full Student Services	$37

3.11.3 REGISTRATION FEE

A non-refundable registration fee of $15 is included in the published fees for tuition of Part-time and Special students.

N.B. Part-time and Special students whose total fees, if calculated on an individual-course basis, would exceed the regular tuition fee ($638) are accorded the privilege of paying the regular fee instead. However, individual instruction in practical subjects exceeding the maximum provided in the full-time program will be charged separately.

3.11.4 EXAMINATION FEES

Non-refundable examination fees of $10 for each theoretical and $25 for each practical course are included in the tuition fees.

Students who apply for practical examinations after the deadline (see §5.8.4.5) normally will not be permitted to sit an examination until the next regular period. In exceptional circumstances, permission may be given by the Chairman of the Department of Performance, but a fee of $15 will be charged to the student.

Supplemental examination fees for all students are the same as those quoted above. All examination fees must be paid in advance to the Bookkeeper of the Faculty of Music.

Part-time and Special students who have paid less than the basic regular tuition fee of $638 will have to pay an additional fee to the Students' Society.

3.11.5 REGULATIONS FOR PAYMENT OF FEES

1) Students entering the University for the first time are required to pay their fees either by mail or in person at the University Accounting Office. The first instalment is due within ten days after registration; the second instalment, before January 15. A late-payment fee of $10 is charged for payment within 30 days after the specified dates and $25 thereafter.

2) Students who have completed one or more years and intend to register in the succeeding year must pay one-half of the total sessional fee by mail or in person to the University Accounting Office before September 1; otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all upper-year students either with their reports of sessional standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary, or student loan, and who require this for payment of the first instalment of fees, must obtain from the Student Aid Officer, McGill University, a Permit to Delay Payment of Fees.

3) Students registering late must pay their fees at the time of registration, failing which they become subject to the late-payment fee and the provisions of the following paragraph: As soon as possible after the prescribed dates for the payment of fees, the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

4) Fees are not refundable for classes or individual instruction missed or discontinued during the term.

3.12 FINANCIAL AID

Details of University scholarships and bursaries will be found in the *Announcement of Undergraduate Scholarships, Bursaries, Prizes, Medals and Loan Funds,* issued by the University and obtainable at the Registrar's Office.

For additional information about financial aid, i.e. Quebec Provincial Government Bursaries and Loans etc., please consult Mr. J. S. Kennedy, Director, Student Aid Office, 3465 Peel Street, McGill University, Montreal.

The scholarships, bursaries, prizes, and loans administered by the Faculty of Music are awarded during October. At registration time, applicants should ask the Dean's secretary for the special Scholarship Application Form of the Faculty and return the completed form as soon as possible.

Awards to students in the upper years are determined by their achievements during the preceding academic year. A limited number of entrance scholarships, reserved for Canadian students and covering part of the first year tuition fee, is awarded on the basis of musical talent as demonstrated at competitive auditions in October, or, in the case of Composition majors, by original compositions submitted.

3.13 REGULATIONS

1. All students are required to be punctual at all classes and lessons.

2. Sessional results in theoretical subjects are calculated on the basis of both classwork and examinations. Students are warned that by missing the classwork they risk a sessional failure in the subject concerned.

3. A student may, with the permission of the instructor concerned, audit a class in which he has a personal interest. However, it should be noted that auditors are not registered for such courses, that the instructor is not expected to correct any assignments or papers done by an auditor, and that an auditor may neither write an examination in that subject nor receive any credit for such course.

4. The Faculty of Music utilizes a 4-point Course Credit System (A: 80-100% = 4; B: 65-79% = 3; C: 55-64% = 2; D: 45-54% = 1; F: 0-44% = 0) which operates as in the table:

Course & Number	*Course Credit Weight*	*Mark Received*	*Grade Points*
Theory & Analysis 211-223D	6	B(3)	18
Ear Training 212-131D	4	C(2)	8
Piano 248-310A	2	A(4)	8
248-310B	2	A(4)	8
English 120-E10D	6	B(3)	18
French 126-110D	6	C(2)	12
Choir 243-993A	1	C(2)	2
243-993B	1	C(2)	2
	Total Credits 28		*Total Grade Pts.* 76

Grade Point Average: 76 ÷ 28 = 2.71

5. CONDITIONAL ADMISSIONS: Conditional Admission to a course may be granted only if the mark in the lower level course is "D" or "K". Conditional Admissions will be reviewed by November 15. Students in their final year may be conditionally admitted to a course required for their degree.

6. COURSE CHANGES: Students are permitted to change courses and/or sections of a course during the first three-week period of classes in each term. Forms for this purpose are available at the Reception Desk of the Strathcona Music Building, 555 Sherbrooke Street, West. (This time is referred to as the official Course Change Period.)

Late course change requests (other than changes imposed by the Faculty) will be accepted only with a late fee of $5. If a student's registration must be corrected after the Course Change Period to bring his record into conformity with the courses he is actually taking, he will be charged the $5 fee.

7. WITHDRAWALS: Withdrawal from any course after the end of the Course Change Period requires the special approval of the Department Chairman concerned and the Dean. In such cases the student's mark in the course will be "W". Withdrawal forms must be obtained from the Reception Desk at the Strathcona Music Building.

The final deadlines for withdrawing from courses are:

For a half course: The end of the seventh week of classes.

For a full-course: The end of the third week of classes in the Second Term.

N.B. A student who does not complete a course for which he is registered will receive a grade of "F".

8. INCOMPLETES: At the discretion of the instructor a mark of "K" (Incomplete) may be given to a student who, due to extenuating circumstances, has not finished the course work on time. The deadline for completion and submission of the required work shall be set by the instructor but may not be later than the end of the next Course Change Period. If the "Incomplete" is not removed by this time, the mark will be changed to "F".

A student who, in exceptional cases only, is given permission by his Departmental Chairman or the Student Progress Committee to leave a course indefinitely incomplete (without penalty) will receive the symbol "KK"; in which case, the student's Grade Point Average will be calculated without including this course.

9. ABSENT: The symbol "J" (Absent — 0 grade points) will be entered on the transcript of those students who were absent from the final examination without previous authorization.

10. DEFERRALS: Deferred examinations are permitted in case of illness or other exceptional circumstances. A written request for the deferment of an examination must be submitted to the Department Chairman. On the student's transcript a deferred examination will be entered as "L".

11. SUPPLEMENTALS: Supplemental Examinations may be given at the discretion of the instructor. In a course in which no continuation is required, the pass mark awarded will be D. If continuation in the course is required, the pass mark awarded will be C. A student who receives a mark below 30% in a course is not permitted to take a supplemental examination but must repeat the course.

3.13.1 **ENSEMBLE REGULATIONS**

Assignments to Faculty Ensembles (Orchestra, Bands, Choirs, Chamber Music, Opera Workshop, Jazz Workshop, etc.) are made at the time of enrolment, and reassignments may be made from time to time during the year. Students who have been assigned to these ensembles are reminded that regular attendance is mandatory.

Membership in any non-Faculty ensemble (professional, student, amateur) is considered an extra-curricular activity which can be permitted only on the understanding that curricular assignments (rehearsals, concerts) take precedence at all times.

Students who fail to adhere to this rule will lose the required ensemble credit. In case of repeated absenteeism, a student will be asked to withdraw from the Faculty.

3.14 EXAMINATION DATES 1973-74

Final sessional examinations in theoretical subjects are held in December (for first term courses), and in late April for all others.

Practical examinations will be held on the following dates:

September 4 - 13 (for students graduating in the fall of 1973)
November 19 - 23
February 25 - 28
April 29 - May 10

3.15 GENERAL REQUIREMENTS FOR UNDERGRADUATE DEGREES AND DIPLOMAS

1. Completion of all courses and all proficiency requirements specified in the candidate's curriculum.
2. Minimum cumulative grade point average of 2.0.
3. Completion of a minimum of 48 credits in residence at McGill University. (B.Mus. degree only.)

Graduation With Distinction: Any student completing the requirements for an undergraduate degree in the Faculty of Music with a cumulative grade point average of 3.6 will be graduated with *Distinction;* with a grade point average of 3.8, with *High Distinction.*

Grade Average and Probation: A student is automatically on probation when, in any year he:

a) Has not earned a grade point average of 2.0 (C); *or*

b) Has failed in one third or more of the work attempted; *or*

c) If majoring in Performance, does not have a B in his major field.

Students on probation may be required to appear before the Committee on Student Admission and Progress.

A student can be on probation for one year only.

Time Limit: All work towards music degrees and diplomas must be completed within the following time limits:

B.Mus. degree — Eight years.
L.Mus. diploma — Six years.
Concert Diploma — Four years.

For additional information on courses and examinations please consult the Departmental Handbooks.

4 PROGRAMS OF STUDY

4.1 DEPARTMENT OF THEORY: Composition; History; Theory

4.1.1 B.Mus. WITH A MAJOR IN COMPOSITION

Course Title	*Course No.*	*Course Credits*	*Total*
COMPOSITION	213-140D	4	
	213-240D	6	
	213-340D	6	16
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	
	One of:		
	211-327D	4	
	211-322D	6	
	211-323D	6	22 or 24
HISTORY	214-180D	6	
	214-280D	6	12
CONDUCTING AND ORCHESTRATION	241-136D	2	
	211-260D	4	6
PRACTICAL CONCENTRATION: Completion of Concentration III			12
MUSIC ELECTIVES			24
ENSEMBLE: One per year		2	10
ARTS & SCIENCE ELECTIVES:			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			156-158

4.1.2

B.Mus. WITH A MAJOR IN HISTORY

Course Title	*Course No.*	*Course Credits*	*Total*
HISTORY	214-180D	6	
	214-280D	6	
	214-380A	3	
	214-381A	3	
	214-382A	3	
	214-383B	3	
	214-384B	3	
	214-385A	3	30
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	
	211-327D	4	22
SCORE READING	211-370D	2	2
PRACTICAL CONCENTRATION:			
Completion of Concentration III			12
FREE ELECTIVES			24
ENSEMBLE:			
One per year		2	10
ARTS & SCIENCE ELECTIVES:			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			154

4.1.3 B.Mus. WITH A DESIGNATED MAJOR

(The courses comprising the Major field must be approved by the Theory Department prior to registration in the second year of the program)

Course Title	*Course No.*	*Course Credits*	*Total*
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
PRACTICAL CONCENTRATION:			
Completion of Concentration III			12
MUSIC ELECTIVES			24
FREE ELECTIVES			24
ENSEMBLE:			
One per year		2	10
ARTS & SCIENCE ELECTIVES:			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			154

4.1.4 B.Mus. WITH HONOURS IN COMPOSITION

Course Title	*Course No.*	*Course Credits*	*Total*
COMPOSITION	213-140D	4	
	213-240D	6	
	213-340D	6	
	213-440D	6	22
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	
	212-432D	2	14
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	One of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	32
HISTORY	214-180D	6	
	214-280D	6	12
CONDUCTING	241-136D	2	2
SCORE READING	211-370D	2	
	211-470D	2	4
ORCHESTRATION	211-260D	4	
	211-360D	4	
	211-460D	4	12
PRACTICAL CONCENTRATION: Completion of Concentration III			12
ENSEMBLE: One per year		2	10
ELECTIVE (with Departmental Approval)		6	6
ARTS & SCIENCE ELECTIVES:			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course at the 300 level.)			
			168

Special Requirements: Cumulative Grade Point Average: minimum 3.00
Composition 213-240D, 213-340D, and 213-440D — mark of A

4.1.5 **B.Mus. WITH HONOURS IN HISTORY**

Course Title	*Course No.*	*Course Credits*	*Total*
HISTORY	214-180D	6	
	214-280D	6	
	214-380A	3	
	214-381A	3	
	214-382A	3	
	214-383B	3	
	214-384B	3	
	214-385A	3	
	214-499D	6	36
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	One of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	32
SCORE READING	211-370D	2	
	211-470D	2	4
PRACTICAL CONCENTRATION:			
Completion of Concentration III			12
ENSEMBLE:			
One per year		2	10
ARTS & SCIENCE ELECTIVES:			
4-year program (5 full courses)		6 (30)	
5-year program (8 full courses)		6	48
1) Two languages required: a) German continued to 200 level; b) any other language			
2) European History			
3) Free choice for remainder			
			154

Special Requirements: Cumulative Grade Point Average: minimum 3.00
All History courses — mark of A or B in each.

4.1.6 B.Mus. WITH HONOURS IN THEORY

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	211-323D	6	
	211-422D	6	
	211-423D	6	44
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
PHYSICS OF MUSIC	198-224B	3	3
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15
MUSIC ELECTIVES (with Departmental Approval)			15
PRACTICAL CONCENTRATION: Completion of Concentration III			12
ENSEMBLE: One per year		2	10
ARTS & SCIENCE ELECTIVES:			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			153

Special Requirements: Cumulative Grade Point Average: minimum 3.00
Mark of A or B in all Theory courses*

*The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D, 211-427D, and 198-224B.

4.1.7 B.Mus. (HONOURS IN THEORY WITH ENGLISH OPTION)

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	Two of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	38
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15
PRACTICAL CONCENTRATION: Completion of Concentration III			12
ENSEMBLE: One per year		2	10
FREE ELECTIVES: 4-year program (none) 5-year program (3 full courses)		6	18
ENGLISH: *Eight courses* in the English Department selected by the student in consultation with an appointed advisor* from the English Department.		6	48

These courses may be selected in one of the following patterns:

** *Group I Literature:*
— 7 full courses in Group I
— 1 full course from Group II or Group III

** *Group II Theatre & Drama:*
— 6 full courses in Group II
— 2 full courses in Group I and/or Group III

** *Group III Film & Communications:*
— 4 full courses in Group III
— 3 full courses in Group I and/or Group II
— 1 full course in an approved elective.

*Students should see the Undergraduate Program director in the English Department prior to enrolment.

**See the Arts and Science calendar for course listings.

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Special Requirements: Cumulative Grade Point Average: minimum 3.00
Mark of A or B in all special English courses, and Theory courses.***

***The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D and 211-427D.

4.1.8 B.Mus. (HONOURS IN THEORY WITH LINGUISTICS OPTION)

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	Two of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	38
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15
PRACTICAL CONCENTRATION: Completion of Concentration III			12
ENSEMBLE: One per year		2	10
FREE ELECTIVES			
4-year program (2 full courses)		6 (12)	
5-year program (5 full courses)		6	30
LINGUISTICS (6 full courses)		6	36

Mandatory Courses:

104-201D Introduction to the Study of Language
241B Sociolinguistics
350A Introduction to General Phonetics
351B Phonology
360A Theory of Morphology and Syntax
361B Seminar in Morphology and Syntax
480A Seminar in Linguistic Theory

Electives: (2 full courses)

Additional courses in Linguistics
Language courses (with approval of department)
Philosophy 355B — Philosophy of Language
Psychology 340A — Psychology of Language
Psychology 341B — Selected Topics in Psycho-Linguistics
Psychology 401 — Cognitive Processes (available only with permission of instructor)
Psychology 455 — Research Methods in Psycho-Linguistics
Anthropology 310B — Anthropology of Communication
or other courses with the approval of the department

153

Special Requirements: Cumulative Grade Point Average: minimum 3.00
A or B in all special Linguistic courses, and Theory courses.*

*The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D and 211-427D.

4.1.9 B.Mus. (HONOURS IN THEORY WITH MATHEMATICS OPTION)

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	Two of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	38
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15

PRACTICAL CONCENTRATION:
Completion of Concentration III — 12

ENSEMBLE:
One per year — 2 — 10

FREE ELECTIVES:
4-year program (none)
5-year program (3 full courses) — 6 — 18

MATHEMATICS
(8 full courses) — 6 — 48

Mandatory Courses

189-E14A	Calculus I
E15B	Calculus II
E21B	Analytical Geometry and Vectors
E22B	Calculus III
231A or B	
232B	
318A	Mathematical Logic
323A	Introduction to Probability and Random Variables
324B	Introduction to Sampling Theory and Statistical Inference
308-200A or B	Computer Science

Electives: (3 full courses)

189-217A	Modern Algebra
217B	Modern Algebra
252A	Real Analysis
314A or B	Advanced Calculus
315A or B	Differential Equations
317A	Numerical Analysis
319B	Differential Equations
327B	Numerical Analysis
328B	Computability and Mathematical Linguistics
348A	Topics in Geometry
349B	Topics in Geometry
410D	Mathematical Analysis of Systems
423D	Statistical Methods
447B	Probability Theory and Markov Chains
489A	Mathematical Logic
490B	Mathematical Logic

Other mathematics courses may be available with special permission.

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Special Requirements: Cumulative Grade Point Average: minimum 3.00
A or B in all the special Mathematics courses, and Theory courses.*

*The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D and 211-427D.

4.1.10 B.Mus. (HONOURS IN THEORY WITH PHILOSOPHY OPTION)

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	Two of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	38
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15
PRACTICAL CONCENTRATION:			
Completion of Concentration III			12
ENSEMBLE:			
One per year		2	10
FREE ELECTIVES:			
4-year program (1 full course)		6 (6)	
5-year program (4 full courses)		6	24
PHILOSOPHY			
(7 full courses)		6	42
Mandatory Courses:			
210A Introduction to Deductive Logic			
211B Introduction to Deductive Logic *OR*			
212B Introduction to Philosophical Analysis			
320A History of Aesthetics			
321B Problems of Aesthetics			
Electives: Five full courses in Philosophy			
			153

Special Requirements: Cumulative Grade Point Average: minimum 3.00
A or B in all the special Philosophy courses, and Theory courses.*

*The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D and 211-427D.

4.1.11 B.Mus. (HONOURS IN THEORY WITH PSYCHOLOGY OPTION)

Course Title	*Course No.*	*Course Credits*	*Total*
THEORY AND ANALYSIS	211-223D	6	
	211-222D	6	
	211-322D	6	
	211-327D	4	
	211-427D	4	
	Two of:		
	211-323D	6	
	211-422D	6	
	211-423D	6	38
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
HISTORY	214-180D	6	
	214-280D	6	
	214-489B	3	15
PRACTICAL CONCENTRATION:			
Completion of Concentration III			12
ENSEMBLE:			
One per year		2	10
FREE ELECTIVE:			
4-year program (1 full course)		6 (6)	
5-year program (4 full courses)		6	24
PSYCHOLOGY			
(7 full courses in one of two concentrations)		6	42

1. Concentration in Experimental Psychology Mandatory Courses:

200 Introduction to Psychology, or equivalent
204A or B Introduction to Psychological Statistics
305A or B Psychological Statistics
210 General Experimental Psychology
211D Laboratory Methods in Psychology
302A Perception
303B Thinking

Courses Selected from the following list: (15 credits)

300A Motivation
301B Learning
304 Child Psychology
310 Nature and Measurement of Human Abilities
400 Contemporary Psychological Theory
401 Cognitive Processes
403A Modern Psychology in Historical Perspective
404B Attention and Memory
450 Experimental Problems

Other courses may be substituted for the above when considered appropriate for the student's program.

2. Concentration in Social Psychology Mandatory Courses:

200 Introduction to Psychology, or equivalent
204A or B Introduction to Psychological Statistics
305A or B Psychological Statistics
210 General Experimental Psychology
211D Laboratory Methods in Psychology
330A Introduction to Social Psychology
331B Advanced Social Psychology

Courses Selected from the following list: (15 credits)

304	Child Psychology
310	Nature and Measurement of Human Abilities
332A	Introduction to Personality
336B	Quantitative Social Psychology
400	Contemporary Psychological Theory
403A	Modern Psychology in Historical Perspective
411	Selected Topics in Social Psychology

Other courses may be substituted for the above when considered appropriate for the student's program.

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Special Requirements: Cumulative Grade Point Average: minimum 3.00
A or B in all the Psychology courses, and Theory courses.*

*The courses which require a mark of A or B include 211-222D, 211-322D, 211-323D, 211-422D, 211-423D, 211-327D and 211-427D.

4.2 DEPARTMENT OF PERFORMANCE: Keyboard; Voice; Orchestral Instruments

4.2.1 B.Mus. (MAJOR IN PERFORMANCE) Keyboard

Course Title	*Course No.*	*Course Credits*	*Total*
PRACTICAL:			
Major (4 credits each term)		8	40
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
MUSIC ELECTIVES			12
ENSEMBLE			
(CHOIR is required each year plus at least three full ensemble electives.)		2	16
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			152

Special Requirements:
A student majoring in Performance must achieve at least a B in his major field in the Qualifying Examination and in each subsequent term.

4.2.2 B.Mus. (MAJOR IN PERFORMANCE) Voice

Course Title	*Course No.*	*Course Credits*	*Total*
PRACTICAL:			
Major (4 credits each term)		8	40
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	
	212-431D	2	14
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
MUSIC ELECTIVES			10
ENSEMBLE			
(CHOIR is required each year plus at least three full ensemble electives.)		2	16
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level. For Voice Majors one must be German and one Italian.)			
			152

Special Requirements:
A student majoring in Performance must achieve at least a B in his major field in the Qualifying Examination and in each subsequent term.

4.2.3 B.Mus. (MAJOR IN PERFORMANCE) Orchestral Instruments

Course Title	*Course No.*	*Course Credits*	*Total*
PRACTICAL:			
Major (4 credits each term)		8	40
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
MUSIC ELECTIVES			12
ENSEMBLE			
(One of CHOIR, ORCHESTRA or BAND each year plus at least three full ensemble electives.)		2	16
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			
			152

Special Requirements:
A student majoring in Performance must achieve at least a B in his major field in the Qualifying Examination and in each subsequent term.

4.2.4

B.Mus. (MAJOR IN PERFORMANCE)
Orchestral Conducting

Course Title	*Course No.*	*Course Credits*	*Total*
CONDUCTING	241-136D	2	
	241-236D	4	
	241-336D	6	
	241-436D	8	20
EAR TRAINING	212-131D	4	
	212-231D	4	
	212-331D	4	
	212-432D	2	14
THEORY & ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	
	211-327D	4	
	211-427D	4	26
HISTORY	214-180D	6	
	214-280D	6	
	214-385A	3	
	214-389B	3	18
SCORE READING	211-370D	2	
	211-470D	2	4
ORCHESTRATION	211-360D	4	
	211-460D	4	8
INSTRUMENTAL SURVEY (Strings; Woodwinds; Brass; Percussion)	223-101A or B	2	
	223-102A or B	2	
	223-103A or B	2	
	223-204D	2	8
CHORAL TECHNIQUES	221-250D or 350D or 450D at discretion of instructor	4	4
PRACTICAL CONCENTRATION: Completion of Concentration III			12
ENSEMBLE: One each year (both terms)		2	10
ARTS & SCIENCE ELECTIVES: 4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level.)			166

Special Requirements:
A student majoring in Performance (Conducting) must maintain first class standing (A) in his Conducting courses.

4.2.5 LICENTIATE OF MUSIC (L.Mus.) All Instruments and Voice

Course Title	*Course No.*	*Course Credits*	*Total*
PRACTICAL:			
Major (5 credits a term for 6 terms)		10	30
EAR TRAINING	212-131D	4	
	212-231D	4	8
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	12
HISTORY OF MUSIC	214-182D	6	6
ENSEMBLE			
(One full ensemble course each year plus three full approved ensemble electives.)		2	12
			68

Admission to this program requires an audition in the major field.

Continuation in the program requires that a grade of B be maintained in the major field. The candidate must take the Qualifying Examination at the end of his first year of study (Major 2) and the Penultimate and Final Examinations in each of the next two years if he hopes to complete the diploma in the normal length of time.

4.2.6 CONCERT DIPLOMA

Course Title	*Course No.*	*Course Credits*	*Total*
PRACTICAL:			
Graduate Major (5 credits a term for 4 terms)		20	
Recitals (3)		3	
Concerto Performance (1)		1	24
EAR TRAINING	212-331D	4	
	212-431D (for singers only)	(2)	4 (or 6)
THEORY AND ANALYSIS	211-321D	6	6
HISTORY OF MUSIC			
(Music Literature Electives)		6	6
ENSEMBLE			
(Two full approved ensemble electives each year.)		2	8
			48 or 50

Admission is by audition only. Continuation in the program requires consistent first class standing in the major field.

4.3 SCHOOL MUSIC PROGRAM: Keyboard/Choral; Orchestral Instruments

4.3.1 B.Mus. WITH A MAJOR IN SCHOOL MUSIC (Keyboard/Choral)

4.3.1.1 Keyboard Concentration

Course Title	*Course No.*	*Course Credits*	*Total*
EAR TRAINING	212-130D	4	
	212-230D	4	
	212-330D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
PRACTICAL CONCENTRATION			
Completion of Concentration III			12
VOICE CLASS	221-235D	2	
	221-335D	2	4
SCHOOL MUSIC	223-101A or B	2	
	223-102A or B	2	
	223-103A or B	2	
	223-204D	2	
	221-150D or 221-151D	2	
	221-351D	2	
	221-353D	2	
	221-250D	4	
	221-350D	4	
	221-450D	4	26
OTHER MUSIC	241-136D	2	
	222-254D	2	
	222-354D	2	
	222-454D	2	
	211-461D	4	12
ELECTIVES			6
ENSEMBLE			
Choir is required each year (both terms)		2	10
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level, preferably in a school teaching subject.			
			154

B.Mus. WITH A MAJOR IN SCHOOL MUSIC (Keyboard/Choral)

Voice Concentration

4.3.1.2

Course Title	*Course No.*	*Course Credits*	*Total*
EAR TRAINING	212-130D	4	
	212-230D	4	
	212-330D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
PRACTICAL CONCENTRATION			
Completion of Concentration III			12
SCHOOL MUSIC	223-101A or B	2	
	223-102A or B	2	
	223-103A or B	2	
	223-204D	2	
	221-150D or 221-151D	2	
	221-351D	2	
	221-353D	2	
	221-250D	4	
	221-350D	4	
	221-450D	4	22
OTHER MUSIC	241-136D	2	
	222-254D	2	
	222-354D	2	
	222-454D	2	
	211-461D	4	12
ELECTIVES			6
ENSEMBLE			
Choir is required each year (both terms)		2	10
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level, preferably in a school teaching subject.)			
			150

B.Mus. WITH A MAJOR IN SCHOOL MUSIC (Keyboard/Choral)

4.3.1.3 **Guitar Concentration**

Course Title	*Course No.*	*Course Credits*	*Total*
EAR TRAINING	212-130D	4	
	212-230D	4	
	212-330D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
PRACTICAL CONCENTRATION			
Completion of Concentration III			12
VOICE CLASS	221-235D	2	
	221-335D	2	4
SCHOOL MUSIC	223-101A or B	2	
	223-102A or B	2	
	223-103A or B	2	
	223-204D	2	
	221-151D	2	
	221-351D	2	
	221-353D	2	
	221-250D	4	
	221-350D	4	
	221-450D	4	26
OTHER MUSIC	241-136D	2	
	222-254D	2	
	222-354D	2	
	222-454D	2	
	211-461D	4	12
ELECTIVES			6
ENSEMBLE			
Choir is required each year (both terms)		2	10
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level, preferably in a school teaching subject.)			
			154

4.3.2 B.Mus. WITH A MAJOR IN SCHOOL MUSIC (Orchestral Instruments)

Course Title	*Course No.*	*Course Credits*	*Total*
EAR TRAINING	212-130D	4	
	212-230D	4	
	212-330D	4	12
THEORY AND ANALYSIS	211-223D	6	
	211-224D	6	
	211-321D	6	18
HISTORY	214-180D	6	
	214-280D	6	12
PRACTICAL CONCENTRATION			
Completion of Concentration III			12
SCHOOL MUSIC	223-201A or B	2	
	223-211A or B	2	
	223-202D	4	
	223-203D	4	
	223-204D	2	
	223-205D	4	
	223-305D	4	
	223-405D	6	
	221-250D or 221-350D at discretion of instructor	4	
	221-351D or 221-353D	2	34
OTHER MUSIC	221-235D	2	
	241-136D	2	
	222-254D	2	
	222-354D	2	
	222-454D	2	
	211-461D	4	14
ELECTIVES			6
ENSEMBLE			
Orchestra or Band is required each year (both terms)		2	10
ARTS & SCIENCE ELECTIVES			
4-year program (4 full courses)		6 (24)	
5-year program (7 full courses)		6	42
(At least one must be a continuation course to the 300 level, preferably in a school teaching subject.)			
			160

5 COURSES AND PREREQUISITES

5.1 Theory, Counterpoint, Harmony and Analysis
5.2 Orchestration, Arranging and Score Reading
5.3 Ear Training
5.4 Composition
5.5 History and Literature
5.6 School Music
5.7 Ensembles and Conducting
5.8 Practical Subjects

5.1 THEORY, COUNTERPOINT, HARMONY AND ANALYSIS

211-222D. THEORY AND ANALYSIS. (6 Credits: *Prerequisite:* 211-223D or 211-121D; 4 hours).
PROFESSOR BRIAN CHERNEY

211-223D. MELODY AND COUNTERPOINT. (6 Credits: *Prerequisite:* McGill Preparatory Theory Secondary II (Grade 9); 3 hours).
STAFF

211-224D. TONAL HARMONY AND ANALYSIS. (6 Credits: *Prerequisite:* 211-223D or 211-121D; 3 hours).
STAFF

211-227A. INTRODUCTORY ANALYSIS. (2 Credits; 2 hours). For students who have taken a one-year course in tonal harmony, but have not done analysis equivalent to that given in 211-224D.
PROFESSOR PETER KOPROWSKI

211-321D. THEORY AND ANALYSIS. (6 Credits: *Prerequisite:* 211-224D or 211-221D; 3 hours).
STAFF

211-322D. TONAL COUNTERPOINT. (6 Credits: *Prerequisite:* 211-222D or 211-321D; 2 hours).
PROFESSOR KELSEY JONES

211-323D. MODAL COUNTERPOINT. (6 Credits: *Prerequisite:* 211-222D or 211-321D; 2 hours).
PROFESSOR KELSEY JONES

211-327D. ANALYSIS (19th Century Music.) (4 Credits: *Prerequisite:* 211-224D, 211-221D or 211-222D; 2 hours).
PROFESSOR MARVIN DUCHOW

211-422D. FUGUE. (6 Credits: *Prerequisite:* 211-322D; 3 hours).
PROFESSOR KELSEY JONES

221-423D. ADVANCED HARMONY. (6 Credits: *Prerequisites:* 211-322D and 211-327D; 3 hours).
PROFESSOR BRUCE MATHER

211-427D. ANALYSIS (20th Century Music.) (4 Credits: *Prerequisite:* 211-327D; 2 hours).
PROFESSOR BRIAN CHERNEY

198-224B. PHYSICS OF MUSIC (Faculty of Science.) (3 Credits: *Prerequisite:* none; Half course: 3 hours).
PROFESSOR MANUEL LANGLEBEN

5.2 ORCHESTRATION, ARRANGING AND SCORE READING

211-260D. INTRODUCTORY ORCHESTRATION. (4 Credits: *Prerequisite:* None; 2 hours)
PROFESSOR EUGENE PLAWUTSKY

211-360D. ORCHESTRATION. (4 Credits: *Prerequisites:* 213-240D and 211-222D or 211-224D (-221D); 2 hours).
PROFESSOR ALEXANDER BROTT

211-361D. COMMERCIAL ARRANGING. (4 Credits: *Prerequisite:* 213-240D; 2 hours).
MR. NEIL CHOTEM

211-370D. SCORE READING. (2 Credits: *Prerequisites:* Piano Secondary III and 211-222D; 1 hour).
PROFESSOR PETER KOPROWSKI AND MR. RICHARD HUNT

211-460D. ORCHESTRATION. (4 Credits: *Prerequisite:* 211-360D; 2 hours).
PROFESSOR BENGT HAMBRAEUS

211-461D. CHORAL AND INSTRUMENTAL ARRANGING. (4 Credits: *Prerequisites:* 211-321D and 223-101-104; 2 hours).
PROFESSOR ROBERT JONES AND MR. RICHARD HUNT

211-470D. SCORE READING. (2 Credits: *Prerequisite:* 211-370D; 1 hour).
PROFESSOR ROBERT JONES

5.3 EAR TRAINING

212-030D. EAR TRAINING. (No Credit; *Prerequisite:* None; 2 hours).
STAFF AND GRADUATE TEACHING ASSISTANTS

212-130D. EAR TRAINING (Moveable Doh.) (4 Credits; *Prerequisite:* 212-030D or McGill Preparatory Ear Training Secondary II (Grade 9); 2 hours).
MR. PIERRE PERRON

212-131D. EAR TRAINING (Fixed Doh.) (4 Credits; *Prerequisite:* 212-030D or McGill Preparatory Ear Training Secondary II (Grade 9); 2 hours).
PROFESSOR PETER KOPROWSKI AND GRADUATE TEACHING ASSISTANTS

212-230D. EAR TRAINING (Moveable Doh). (4 Credits; *Prerequisite:* 212-130D; 2 hours).
MR. PIERRE PERRON

212-231D. EAR TRAINING (Fixed Doh.) (4 Credits; *Prerequisite:* 212-131D; 2 hours).
MISS LUBA ZUK AND MRS. PIERRETTE MATHER

212-330D. EAR TRAINING (Moveable Doh.) (4 Credits; *Prerequisite:* 212-230D; 2 hours).
PROFESSOR WAYNE RIDDELL

212-331D. EAR TRAINING (Fixed Doh.) (4 Credits; *Prerequisite:* 212-231D; 2 hours).
MRS. PIERRETTE MATHER

212-431D. SOLFEGE (Fixed Doh.) (2 Credits; *Prerequisite:* 212-331D; 1 hour).
MRS. PIERRETTE MATHER

212-432D. DICTATION. (2 Credits; *Prerequisite:* 212-331D; 1 hour) MRS. PIERRETTE MATHER

5.4 COMPOSITION

213-140D. COMPOSITION. (4 Credits; *Co-requisite:* 211-223D; 1 hour).
PROFESSORS ROBERT JONES, PETER KOPROWSKI AND MR. RICHARD HUNT

213-240D. COMPOSITION. (6 Credits; *Prerequisites:* 213-140D and 211-223D (-121D); 2 hours).
PROFESSORS BRIAN CHERNEY, ROBERT JONES AND PETER KOPROWSKI

213-340D. COMPOSITION. (6 Credits; *Prerequisite:* 213-240D; 2 hours).
PROFESSORS BENGT HAMBRAEUS, ALCIDES LANZA AND BRUCE MATHER

213-341A. ELECTRONIC MUSIC. (3 Credits; *Prerequisite:* 211-224D (-221D) or 211-222D; 1 hour lecture, 1 hour demonstration, 3 hours group studio time). PROFESSOR ALCIDES LANZA

213-342B. ELECTRONIC MUSIC. (3 Credits; *Prerequisite:* 213-341A, and the permission of the instructor [limited enrolment]; 3-hour seminar and 3 hours studio time). PROFESSOR ALCIDES LANZA

213-440D. COMPOSITION. (6 Credits: *Prerequisite:* 213-340D; 2 hours).
PROFESSORS BENGT HAMBRAEUS, ALCIDES LANZA AND BRUCE MATHER

213-441D. SPECIAL PROJECTS IN COMPOSITION. (6 Credits; *Prerequisite:* 213-440D; 2 hours). STAFF

5.5 HISTORY AND LITERATURE

214-180D. HISTORY SURVEY (MEDIAEVAL, RENAISSANCE, AND BAROQUE.((6 Credits; *Prerequisite or Co-requisite:* Theory 211-223D (-121D) or permission of instructor; 3 hours).
PROFESSOR PAUL HELMER

214-182D. MUSIC LITERATURE SURVEY (Not given 1973-74). (6 Credits; *Prerequisite or Corequisite:* 211-223D; 3 hours.)

214-280D. HISTORY SURVEY (CLASSICAL AND ROMANTIC; 20TH CENTURY.) (6 Credits: *Prerequisites:* History Survey 214-180D and Theory 211-224D (221D). It may be taken concurrently with Theory 211-224D; 3 hours).
PROFESSOR BRUCE MINORGAN

214-328D. MUSIC CULTURES OF THE WORLD. (Not given 1973-74). (6 Credits: *Prerequisite:* History 214-280D; 3 hours plus 1 hour of guided listening).

214-380A. MEDIAEVAL MUSIC. (Not given 1973-74). (3 Credits: *Prerequisites:* 214-280D and 211-224D or 211-222D; Half course; 3 hours).

214-381A. RENAISSANCE MUSIC. (3 Credits: *Prerequisites:* 214-280D and 211-224D (-221D) or or 211-222D; Half course; 3 hours).
PROFESSOR MARVIN DUCHOW

214-382A. BAROQUE MUSIC. (Not given 1973-74). (3 Credits; *Prerequisites:* 214-280D and 211-224D or 211-222D; Half course: 3 hours).

214-383A. CLASSICAL MUSIC. (3 Credits; *Prerequisites:* 214-280D and 211-224D (-221D) or 211-222D; Half course: 3 hours). PROFESSOR PAUL MARKS

214-384B. ROMANTIC MUSIC. (Not given 1973-74). (3 Credits; *Prerequisites:* 214-280D and 211-224D or 211-222D; Half course: 3 hours.)

214-385B. TWENTIETH CENTURY MUSIC. (3 Credits; *Prerequisites:* 214-280D and 211-224D (-221D) or 211-222D; Half course: 3 hours). PROFESSOR BRIAN CHERNEY

214-386A. CHAMBER MUSIC LITERATURE. (Not given 1973-74). (3 Credits; *Prerequisite:* 214-280D Half course: 3 hours).

214-387B. OPERA LITERATURE. (Not given 1973-74). (3 Credits; *Prerequisite:* 214-280D; Half course; 3 hours).

214-388B. KEYBOARD LITERATURE. (3 Credits; *Prerequisite:* 214-280D; Half Course: 3 hours). PROFESSOR PAUL HELMER

214-389B. ORCHESTRAL LITERATURE. (Not given 1973-74). (3 Credits; *Prerequisite:* 214-280D; Half course: 3 hours).

214-390A. VOCAL LITERATURE. (3 Credits; *Prerequisite:* 214-280D; Half course: 3 hours). PROFESSOR PAUL MARKS

214-391B. CANADIAN MUSIC. (3 Credits; *Prerequisite:* 214-280D; Half course: 3 hours). PROFESSOR BRUCE MINORGAN

214-475D, 214-476D. SPECIAL PROJECT. (3, 6 Credits). May be taken to replace one elective. Details will be found in the *Department of Theory Handbook*.

214-489B. HISTORY OF MUSIC THEORY. (Not given 1973-74.) (3 Credits; *Prerequisite:* Theory 211-224D (-221D) or 211-222D; 3 hours). PROFESSOR BRUCE MINORGAN

214-498D. BIBLIOGRAPHY AND METHODOLOGY IN ETHNOMUSICOLOGY. (6 Credits; *Prerequisites:* 214-328D, 211-321D, and 212-331D or permission of the instructor; 4 hours).

214-499D. PROSEMINAR IN MUSICOLOGY. (6 Credits; open only to students in the Honours in Music History program; 3 hours). PROFESSOR PAUL HELMER

5.6 SCHOOL MUSIC

5.6.1 KEYBOARD/CHORAL DIVISION

221-150D. INTRODUCTION TO SCHOOL MUSIC TECHNIQUES — GUITAR. (2 Credits; *Prerequisite:* none; 1 hour). MR. TIMOTHY HEWLINGS

221-151D. INTRODUCTION TO SCHOOL MUSIC TECHNIQUES — RECORDER. (2 Credits; *Prerequisite:* none; 1 hour). MR. JEAN-PIERRE PINSON

221-250D. CHOIR TRAINING SKILLS. (4 Credits; *Prerequisite or co-requisite:* 241-136D and 211-223D (-121D); 2 hours). PROFESSOR WAYNE RIDDELL

221-350D. CHOIR TRAINING SKILLS. (4 Credits; *Prerequisite:* 221-250D; 2 hours). PROFESSOR WAYNE RIDDELL

221-450D. CHOIR TRAINING SKILLS. (4 Credits; *Prerequisite:* 221-350D; 2 hours). PROFESSOR WAYNE RIDDELL

221-351D. KODALY METHOD AND WORKSHOP. (2 Credits; *Prerequisite:* 221-250D; 1 hour). MR. PIERRE PERRON

221-353D. ORFF METHOD AND WORKSHOP. (2 Credits; *Prerequisite:* 221-250D; 1 hour). MISS MIMI SAMUELSON

222-254D. KEYBOARD SKILLS. (2 Credits; *Prerequisites:* Piano Proficiency Test [at least McGill Secondary I (Grade 7) Piano or equivalent] and Theory 211-223D (-121D); 1 hour). PROFESSOR DONALD MACKEY

222-354D. KEYBOARD SKILLS. (2 Credits; *Prerequisite:* 222-254D; 1 hour). PROFESSOR DONALD MACKEY

222-454D. KEYBOARD SKILLS. (2 Credits; *Prerequisite:* 222-354D; 1 hour). PROFESSOR DONALD MACKEY

221-235D. VOICE CLASS. (2 Credits; *Prerequisite:* none; 1 hour). MRS. BETTY DOROSCHUK

221-335D. VOICE CLASS. (2 Credits; *Prerequisite:* 221-235D; 1 hour). MRS. BETTY DOROSCHUK

5.6.2 **INSTRUMENTAL DIVISION**

223-101A & 223-101B. INSTRUMENTAL SURVEY (Strings.) (2 Credits; *Prerequisite:* none; 2 hours).
PROFESSOR STEPHEN KONDAKS

223-102A & 223-102B. INSTRUMENTAL SURVEY (Woodwinds). (2 Credits; *Prerequisite:* none; 2 hours).
PROFESSOR DONALD HUGHES

223-103A & 223-103B. INSTRUMENTAL SURVEY (Brass.) (2 Credits; *Prerequisite:* none; 2 hours).
PROFESSOR RICHARD LAWTON

223-201A & 223-201B. STRING TECHNIQUES (Violin-Viola.) (2 Credits; *Prerequisite:* none — Open only to students majoring in School Music: Instrumental; 2 hours).
PROFESSOR STEPHEN KONDAKS

223-211A & 223-211B. STRING TECHNIQUES (Cello-Bass.) (2 Credits; *Prerequisite:* none — Open only to students majoring in School Music: Instrumental; 2 hours).
PROFESSOR STEPHEN KONDAKS

223-202D. WOODWIND TECHNIQUES. (4 Credits; *Prerequisite:* none — Open only to students majoring in School Music: Instrumental; 2 hours).
PROFESSOR DONALD HUGHES

223-203D. BRASS TECHNIQUES. (4 Credits; *Prerequisite:* none — Open only to students majoring in School Music: Instrumental; 2 hours).
PROFESSOR RICHARD LAWTON

223-204D. PERCUSSION TECHNIQUES. (2 Credits; *Prerequisite:* none — Open only to students majoring in School Music; 1 hour).
MR. LANNY LEVINE

223-205D. ORCHESTRA & BAND TECHNIQUES. (4 Credits; *Corequisite: ONE* of 223-201D, 223-202D, 223-203D; 2 hours).
PROFESSOR STEPHEN KONDAKS AND PROFESSOR DONALD JUGHES

223-305D. ORCHESTRA & BAND TECHNIQUES. (4 Credits; *Prerequisite:* 223-205D; 2 hours).
PROFESSOR STEPHEN KONDAKS AND PROFESSOR DONALD HUGHES

223-405D. ORCHESTRA & BAND TECHNIQUES. (6 Credits; *Prerequisite:* 223-305D; 4 hours).
PROFESSOR DONALD HUGHES

5.7 ENSEMBLES, CONDUCTING, AND DICTION

243-981A & 981B. PIANO ENSEMBLE. (1 - 1 Credit; *Prerequisite:* Concentration Piano Qualifying Examination or equivalent; 1 hour).
PROFESSORS DOROTHY MORTON AND CHARLES REINER, MISS LUBA ZUK

243-982A & 982B. ACCOMPANYING CLASS I. (1 - 1 Credit; *Prerequisite:* Concentration Piano Final Examination or equivalent; 1 hour).
PROFESSOR CHARLES REINER

243-983A & 983B. ACCOMPANYING CLASS II. (1 - 1 Credit; *Prerequisite:* 243-982A & B; 1 hour).
PROFESSOR CHARLES REINER

243-984A & 984B. STUDIO ACCOMPANYING. (1 - 1 Credit; *Prerequisite:* Permission of Instructor). Qualified students may be assigned to studio accompanying for four hours a week in lieu of participation in Choir.
PROFESSOR ROSE GOLDBLATT AND STAFF

243-986A & 986B. OPERA COACHING. (0 Credit; *Prerequisite:* Piano Audition; 3 hours).
MR. ANTONIO NARDUCCI

243-987A & 987B. CONTEMPORARY CHAMBER MUSIC CHOIR. (1-1 Credit; *Prerequisite:* Audition; 2-3 hours).
PROFESSOR EUGENE PLAWUTSKY

243-989A & 989B. WOODWIND ENSEMBLES. (1 - 1 Credit; 2-3 hours).
PROFESSOR DONALD HUGHES, MR. GERALD DANOVITCH AND STAFF

243-990A & 990B. BAND. (1 - 1 Credit; *Prerequisite:* Audition; 4 hours).
PROFESSOR DONALD HUGHES

243-991A & 991B. BRASS ENSEMBLES. (1 - 1 Credit; 2-3 hours).
PROFESSOR RICHARD LAWTON AND STAFF

243-992A & 992B. CONCERT CHOIR. (1 - 1 Credit; *Prerequisite:* Audition; 2-4 hours).
PROFESSOR WAYNE RIDDELL

243-993A & 993B. FACULTY CHOIR. (1 - 1 Credit; 2-4 hours).
PROFESSOR WAYNE RIDDELL, MR. PIERRE PERRON

243-994A & 994B. CONTEMPORARY MUSIC ENSEMBLE. (1 - 1 Credit; *Prerequisite:* Audition; 2-4 hours).
PROFESSORS EDWARD CULBREATH AND EUGENE PLAWUTSKY

243-995A & 995B. JAZZ ENSEMBLE. (1 - 1 Credit; *Prerequisite:* Audition; 3 hours).
MR. GERALD DANOVITCH

243-996A & 996B. OPERA WORKSHOP. (2 - 2 Credits; *Prerequisite:* Audition; 3-6 hours).
PROFESSORS L. DELLA PERGOLA, EDITH DELLA PERGOLA AND STAFF

243-997A & 997B. ORCHESTRA. (1 - 1 Credit: *Prerequisite:* Audition: 4 hours).
PROFESSOR ALEXANDER BROTT. *Conductor-in-Residence, Director, McGill Chamber Orchestra*
PROFESSOR EUGENE PLAWUTSKY. *Conductor*

243-998A & 998B. PERCUSSION ENSEMBLES. (1 - 1 Credit: 2-3 hours). MR. PIERRE BELUSE

243-999A & 999B. STRING ENSEMBLES. (1 - 1 Credit: 2-3 hours).
PROFESSORS STEPHEN KONDAKS, EDWARD CULBREATH AND MR. OTTO ARMIN

241-136D. CONDUCTING. (2 Credits: 1 hour). PROFESSOR ALEXANDER BROTT

241-236D. CONDUCTING. (4 Credits: *Prerequisite:* 241-136 with a grade of A: 1 hour).
PROFESSOR ALEXANDER BROTT

241-336D. CONDUCTING. (6 Credits: *Prerequisites:* 222-101; 223-102; 224-103; 225-104; 211-222; 241-236 with a grade of A; 1 hour). PROFESSOR ALEXANDER BROTT

241-436D. CONDUCTING. (8 Credits: *Prerequisites:* 221-250; 211-321; 211-327; 241-336 with a grade of A; 1 hour). PROFESSOR ALEXANDER BROTT

242-111D. ITALIAN DICTION. (2 Credits: 1 hour). PROFESSOR LUCIANO DELLA PERGOLA

242-112D. GERMAN DICTION. (2 Credits: 1 hour). MISS LUBA ZUK

5.8 PRACTICAL SUBJECTS

5.8.1 PRACTICAL ASSIGNMENTS AND LESSONS

The assignment of students to teachers for private lessons is the responsibility of the Chairman of the Department of Performance and is made on the basis of student request and actual registration. It is understood that returning students will study with the same teacher unless prior arrangements have been made with the Chairman of the Department in consultation with the teachers concerned. Teacher assignments will be made soon after the period of enrolment and posted on the notice boards during the first week of classes. Following this assignment, it is the responsibility of the student to contact his teacher and arrange lesson times.

Individual lessons missed as a consequence of the instructor's absence will be made up at the mutual convenience of the instructor and student. Lessons missed as the result of the student's absence will be made up only if notice of cancellation has been given 48 hours in advance, or if a doctor's certificate is produced and prior notice is given of the cancellation.

5.8.2 CREDIT WEIGHTS FOR PRACTICAL STUDY

Elective; Concentration	2 credits each term
Major (B.Mus.)	4 credits each term
Major (L.Mus.); Graduate Major	5 credits each term

5.8.3 ASSIGNMENT OF PRACTICE ROOMS

Practice hours will be assigned on a weekly basis at the beginning of each term. Students are expected to practice a minimum of 4 hours a week for each credit of practical work undertaken in a term, and will be assigned this amount of time in Faculty of Music practice rooms. Students wishing to be assigned such practice time must complete a PRACTICE ROOM SCHEDULE REQUEST form available at the Department of Performance Office (E202). Practice time is assigned on an hourly basis, and the room is reserved until 10 minutes past the hour. If at that time the student assigned to the room is not present, the room is available to anyone.

5.8.4 EXAMINATIONS AND GOALS IN PRACTICAL SUBJECTS

5.8.4.1 Levels of Achievement

The content of the practical levels outlined in this syllabus is for the guidance of the student and is a flexible rather than rigid description of the requirement.

Each student taking practical instruction is expected to complete one level each year until he has passed the requirement within his field.

Elective Study: Work for students electing a practical subject beyond or in addition to their curricular requirements will be planned by the instructor in consultation with the student

to satisfy the student's individual needs and aims; thus, the student is not expected to follow a specific program, and does not normally sit an examination.

Concentration Study: A student concentrating in an area of practical study is expected to demonstrate both achievement as a performer and the ability to use his instrument as a tool within the framework of his professional work. The level of achievement required is approximately that of a Performance major at the end of his second year (Major II).

Major Study: A student majoring in Performance must show talent for this field before being admitted to the curriculum, and must achieve second class standing (B) in his major subject on the Qualifying Examination and in each subsequent term.

Post-Graduate Study: For students continuing major study on the graduate level. Concert Diploma Candidates must present three recitals as recommended by the faculty members concerned and must maintain first class standing in the major subject.

5.8.4.2 University Qualifying Examination

This examination is given to students in all programs at the end of the second year of study, or, at the end of the term in which the student expects to complete at least 60 credits, or, at the end of the term in which the student expects to qualify for the Diploma or Collegial Studies.

Its purpose is to assess the student's progress in the practical area, and, in the case of a Performance Major, to determine whether or not he may continue in the program. It is also the final examination for the Diploma of Collegial Studies. A committee composed of the Dean, or his delegate, the student's teacher, and at least two other members of the area concerned administers the examination and makes recommendations for the student's upper years of study.

For the Piano Concentration Qualifying Examination, the jury will consist of the student's teacher, the Area Chairman, and one other member of the piano teaching staff. The results are considered by the department in which he is enrolled, in order to assess his potential in his chosen field of study.

The student will be expected to perform works recommended by his teacher and will be graded on his performance at this examination. The student's teacher gives two marks, one for the term's work and one for the performance at the examination; every other member of the committee gives one mark for the examination. The student's final mark is the average of all these.

It is recommended that the University Qualifying Examination be taken at the prescribed time; however, transfer students and other students who wish to postpone it may petition the Chairman of the Department.

5.8.4.3 Other Examinations in Practical Studies

Additional examinations in practical study are held as follows:

Students Majoring in Performance:

Penultimate Examination: normally taken during the student's penultimate year of study, must demonstrate ability at the level of Major IV. The panel consists of the Area Chairman, or his delegate, plus at least 2 other representatives of the area concerned.

Final Examination: must be taken at least eight months after the Penultimate Examination and demonstrate ability at the level of Major V. *Students are required to present a final recital as recommended by the examining panel after consultation with the student's teacher.* The panel consists of the Dean or his delegate, the Area Chairman, plus 2 other representatives of the area concerned.

Students Majoring in School Music, Composition, History and Theory:

Final Examination: Normally taken after three years of study. The student must demonstrate ability at the Concentration III level. The Area Chairman, or his delegate, plus one other representative of the area constitute the examining panel.

It is the prerogative of the teacher to ask for a committee examination of any student. The teacher's grade on the term's work is prepared in advance and will be counted as one half of the final mark.

5.8.4.4 **Mandatory Annual Examinations**

Regular students, other than Performance Majors, who study with teachers not affiliated with the Faculty of Music, but who wish such study to be accredited to their curriculum requirements, must perform an examination in this practical area at least once in every academic year. Such an examination would require payment of the $25.00 examination fee.

5.8.4.5 **Applications for Examinations**

Application for these examinations must be made with the approval of the teacher on the appropriate form available in the Performance Departmental Office, and submitted according to the following schedule:

Examination Period	*Application Deadline*
November 19 - 23, 1973	October 19
February 25 - 28, 1974	January 31
April 29 - May 10, 1974	March 29
September 3 - 6, 1974	August 5

APPLICATIONS RECEIVED AFTER THESE DEADLINES WILL BE AUTOMATICALLY DEFERRED TO THE NEXT EXAMINATION PERIOD.

The student is responsible for applying and must submit with the application three typewritten copies of his examination program, signed by his teacher, for the approval of the Area Committee. Permission to withdraw from a practical examination already scheduled will normally be granted only in the case of illness. A medical certificate must be submitted to the Departmental Secretary within seven days after the withdrawal request has been received. Withdrawal from a scheduled practical examination on other than medical grounds must be authorized by the Department Chairman.

5.8.5 **COURSE NUMBERING (PRACTICAL SUBJECTS)**

A six-digit course number is used to define the area and function of individual practical instruction offered by the Faculty of Music. The first three digits indicate the instrument, i.e.:

224: Violin
225: Viola
226: Cello
227: Bass
228: Guitar
229: Percussion
230: Flute
231: Oboe
232: Clarinet
233: Saxophone
234: Bassoon
235: French Horn
236: Trumpet
237: Trombone
238: Baritone
239: Tuba
250: Piano
251: Organ
252: Harpsichord
253: Voice

The fourth digit indicates the relative level of study:
0: pre-university level courses (no credit).
1: collegial level (pre-Qualifying exam).
2: university level (post-Qualifying exam — all students).
3: university level (pre-Penultimate exam — Performance Majors).
4: university level (post-Penultimate exam — Performance Majors).
6: post-graduate study.

The fifth digit indicates the function of the particular subject in the student's curriculum, i.e.:
1: Elective
3: Concentration
4: Major (Degree)
5: Major (Diploma)
6: Post-graduate concentration
7: Post-graduate major
8: Post-graduate recitals

The final digit indicates examinations and/or recitals, i.e.:

0: No examination
2: Qualifying Examination
3: Concentration: Final examination
4: Major: Penultimate examination
5: Major: Final examination
6: Post-Graduate examination
7: Post-Graduate recital
8: Elective examination

The letter suffix to each course number indicates the term and duration of instruction (A-first term; B-second term; C-summer session; D-first and second terms.)

Thus, the number 225-130A would provide the following information about the instrument, level, function, and examination level of a student's practical study:

225-. . . . : viola
225-1. . . : introductory
225-13. . : concentration
225-130. : no examination
225-130A: first-term instruction

The number 250-354B would provide the following information:

250-. . . . : piano
250-3. . . : post-qualifying
250-35. . : major (diploma)
250-354. : penultimate examination
250-354B: second-term study (and examination)

N.B. A new system of terms and numbers for all grade levels in practical subjects has been introduced. It compares with the former system as follows:

PERFORMANCE MAJORS:

Practical	011	= Major I
	100	= Major II
	200/110	= Major III
	300/210	= Major IV
	400/310	= Major V
	410	= Post-Graduate
	510	= Post-Graduate

NON-PERFORMANCE MAJORS:

Practical	010	= Concentration I
	011	= Concentration II
	100	= Concentration III

PIANO FOR NON-PERFORMANCE MAJORS:

Piano	147	= Concentration I
	247	= Concentration II
	347	= Concentration III

5.8.6 KEYBOARD

Piano:

MISS ELIZABETH DAWSON
PROF. ROSE GOLDBLATT
PROF. PAUL LOYONNET
PROF. KENNETH MEEK
PROF. DOROTHY MORTON
MISS PENELOPE PETERS
PROF. CHARLES REINER
MISS DAPHNE SANDERCOCK
MR. KARL STEINER
MISS LUBA ZUK

Organ:

MR. RAYMOND DAVELUY *(by special arrangement only)*
PROF. KENNETH GILBERT (leave of absence 1973-74)
MR. JOHN GREW
PROF. DONALD MACKEY
PROF. KENNETH MEEK

Harpsichord:

PROF. KENNETH GILBERT (leave of absence 1973-74)
MR. JOHN GREW

5.8.6.1

Piano

N.B. Proposed programs for examinations must be submitted to the Piano Committee for approval before the time of application. Three copies, with timings, should be given to the Secretary of the Department of Performance. A list of repertoire explored by the student during previous terms should be brought to the examiners, not to be performed, but to be considered in the final estimate of the student's rating.

CONCENTRATION I: Emphasis on sight reading. Preparation of Quick Studies, to be learnt within a given short period of time. Pieces at the level of Preparatory School Collegial I, exploring a broad spectrum of piano literature.

CONCENTRATION II: Sight reading and Quick Studies of greater difficulty. Substantial list of pieces at the level of Preparatory School Collegial II. Qualifying examination will consist of two contrasted pieces from different periods; a Quick Study, to be given by the teacher one week prior to the examination date, at the standard of Concentration I; sight reading, previously chosen by the examiners, of a suitable level.

A Scales Test (pass/fail) will be undertaken before the Qualifying Examination, as for the Preparatory School Secondary III. Scales and arpeggios.

CONCENTRATION III: More difficult sight reading. Quick Studies at the level of Concentration II. Pieces chosen in accordance with the progressive requirements of the course. Final examination will consist of three contrasted pieces from different periods; a Quick Study, given by the teacher one week prior to the examination date; sight reading, previously chosen by the examiners, of a suitable level.

MAJOR I: Repertoire at the level of Concentration II.

MAJOR II: Repertoire at the level of Concentration III. At this stage the Qualifying Examination is required. This will consist of a program of four contrasted works from different periods: duration, 30 to 45 minutes. Sight reading previously prepared by the jury panel of a suitable standard.

A separate scales test (pass/fail) must be undertaken before the Qualifying Examination as for the Preparatory School Collegial II Scales and Arpeggios.

MAJOR III: Work on expansion of repertoire in accordance with the progressive requirements of the courses.

MAJOR IV: At this level, the Penultimate Examination will be required. This will consist of a program of four contrasted pieces of different periods, of a suitable degree of advancement. Duration: 45 to 60 minutes. Sight reading, previously prepared by the jury, will be at the required standard for this level.

MAJOR V: The Final Examination, required at this level, will consist of a balanced program of several contrasting works. Duration: 60 minutes. A concerto will also be presented at this session. Public recital by request of the jury.

POST-GRADUATE (Concert Diploma): Further intensive study of the literature. Ability to perform three approved recital programs and four concerti from various periods, including one 20th century concerto. Presentation to the examining panel of a comprehensive list of repertoire studied to indicate mastery of the important works of the general repertoire as well as thorough acquaintance with the chamber music literature involving piano. The list should be verified in advance by the teacher. Professional concert maturity.

5.8.6.2

Organ

CONCENTRATION I: (Successful piano study at the level of McGill Preparatory Grade Secondary III [Gr. 9] is a prerequisite). Studies from: Phillips, *Articulation in Organ Playing*: Videro, *Organ School*. Pieces such as: Buxtehude, *Chaconne in E minor*; Bach, *Orgelbüchlein* (choice of 2 or 3 chorale preludes); Hindemith, *Sonata No. 2*, 2nd movement.

CONCENTRATION II: Studies from the above publications. Couperin, *Offertoire* from *Messe pour les paroisses;* Bach, *Concerto No. 4, in C;* Saint-Saëns, *Prelude in B.* Problems of articulation, registration and tonal structure of the organ will be the subjects for Questions. Qualifying examination.

CONCENTRATION III: Final examination requiring a program of two major works from each of the following categories: Pre-Bach; Bach; 19th and 20th centuries, plus one complete Trio Sonata of Bach. Questions will be asked concerning registration and the tonal structure of the organ. Final examination.

MAJOR I: Studies and pieces at the level of Concentration II. Problems of articulation, registration and tonal structure of the organ will be the subjects for Questions.

MAJOR II, III, IV, V: At each of these levels, the candidate will be required to play one of the Trio Sonatas by Bach (all three movements), and two major works from each of the following categories:

Pre-Bach
Bach
19th-20th Centuries

(Six works in all, plus the Trio Sonata)
The pieces chosen for each year should be determined by the student in consultation with the teacher, and in accordance with the progressive requirements of the course. At least ONE piece should be played from memory.

POST-GRADUATE: Intensive study of the literature. Ability to perform three approved recital programs and four concerti from different periods, including one 20th century concerto. Presentation to the examining panel of a comprehensive list of repertoire studied to indicate mastery of the important works of the general repertoire as well as thorough acquaintance with the chamber music literature involving organ. The list should be verified in advance by the teacher. Preparation of an unfamiliar work within one week before the final examination. Professional concert maturity.

5.8.6.3 Harpsichord

CONCENTRATION I: (Successful piano study at the level of McGill Preparatory Grade Secondary III [Gr. 9] is a prerequisite.) Bach, *Two-Part Inventions;* works from collections such as: Ferguson, *Style and Interpretation;* an Anthology of Keyboard Music. Problems of harpsichord touch, phrasing, articulation, ornamentation and registration.

CONCENTRATION II: Bach, *Three-Part Inventions;* Scarlatti, *Sonata in D minor;* Purcell, *Prelude in G minor* from *Suite No. 2;* Rameau, *La Triomphante;* Bach, *Prelude* from *English Suite No. 2;* etc. Qualifying examination.

CONCENTRATION III: Bach, *Well-Tempered Clavier;* works of the English Virginalists, French Clavecinistes, etc. Selected pieces by Scarlatti, Froberger, Kuhnan, Soler, etc. Sight reading and knowledge of technique and style. Final examination.

MAJOR I: Level similar to Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination at this level.

MAJOR III, IV, V: At each of these levels, the candidate will be required to play two of the Preludes and Fugues from the *Well-Tempered Clavier* by Bach, and a major work from each of the following categories:

English Virginalists
Italian School (Frescobaldi, Merulo, Rossi, etc.)
Bach
French Clavecinistes
Iberian School (Scarlatti, Soler, etc.)

(Six works in all, plus the two Preludes and Fugues)
The pieces chosen for each year should be determined by the student in consultation with the teacher, and in accordance with the progressive requirements of the course. Questions will be asked in all but the final examination on various aspects of harpsichord technique, literature, and style. At least ONE piece should be played from memory.

POST-GRADUATE: Further intensive study of the literature. Ability to perform three approved recital programs and four concerti from various periods, including one 20th century concerto. Presentation to the examining panel of a comprehensive list of repertoire studied to indicate mastery of the important works of the general repertoire as well as thorough acquaintance with the Chamber Music literature involving the candidate's instrument. The list should be verified in advance by the teacher. Preparation of an unfamiliar work within one week before the final examination. Professional concert maturity.

5.8.7 VOICE

MRS. EDITH DELLA PERGOLA
PROF. LUCIANO DELLA PERGOLA
MRS. BETTY DOROSCHUK
MRS. CARMEN MEHTA
MR. JAN SIMONS

CONCENTRATION I: Studies by Concone, Nos. 1-25. Appropriately graded songs from works by: Dowland, Purcell, Handel, Fleming, Mozart, Schubert, or the Italian School. Folk songs. Sight reading.

CONCENTRATION II: Panofka, *Studies*. Songs from: Early Italian School, Dowland, Purcell, Handel, Haydn, Mozart, Schubert, Fauré, Ravel, Hahn, etc. Sight reading. Qualifying examination.

CONCENTRATION III: Final examination consists of: six works, representative of the following schools:

Early Italian (1)*

German: Mozart, Haydn, Schubert, etc. (2)*

French: Ravel, Fauré, Hahn (1)

English: Handel, Purcell, Dowland, Warlock, Bridge, Britten (1)

One recitative and aria from an oratorio or cantata.

*Operatic arias may be substituted in the same language.

MAJOR I: Studies and pieces of a difficulty similar to that of Concentration II.

MAJOR II: Qualifying examination consists of the program described for Concentration III.

MAJOR III: Pieces and studies chosen in consultation with the teacher and in accordance with the progressive nature of the course. Works by: Schubert, Mozart, Schumann, Brahms, Fauré, Poulenc, Ravel, Debussy, Britten, etc. Recitative and Aria from Oratorio, Cantata and Opera.

MAJOR IV: Penultimate examination of approximately 45 minutes duration. Eight works representative of the following:
German School: Strauss, Wolf, Mahler, etc. (2)
French School: Fauré, Ravel, Debussy, Duparc, Poulenc (2)
20th Century: Two songs in a language other than German or French (at least one must be in English)
Either: One complete oratorio part or one complete solo cantata, plus one operatic aria; *OR* one leading operatic role or two minor roles, plus one oratorio aria.

MAJOR V: Final examination: A representative recital consisting of a well-balanced program of:
a) A german song cycle
b) Three French Songs
c) Three 20th century songs (including at least one in English)
d) *Either:* A complete oratorio role and a complete solo cantata
or A leading operatic role and two minor operatic parts.

POST-GRADUATE: Intensive study of the literature. Public recitals and other performances as determined in consultation with the Chairman of the Department and the Voice Committee. Professional concert maturity.

5.8.8 ORCHESTRAL INSTRUMENTS

5.8.8.1 Strings

MR. OTTO ARMIN, *violin*
MRS. MILDRED GOODMAN, *violin*
MRS. SONJA JELINKOVA, *violin*
PROF. STEPHEN KONDAKS, *violin and viola*
PROF. EDWARD CULBREATH, *cello*
MR. THOMAS LEDERER, *bass*

VIOLIN

CONCENTRATION I: Thorough study of technique involving left hand position and bow arm; scales and arpeggios through three octaves; etudes such as Fiorillo, Dont, op. 37; and Kayser; prepared pieces such as Corelli, *La Folia;* Rode, *Concerto in A minor;* Bach, *Concerto in E major;* and Kreutzer, *Concerto No. 19.*

CONCENTRATION II: Continued study of left hand and bow arm technique. Scales and arpeggios through three octaves; etudes such as Fiorillo, Gaviniès, Kreutzer; prepared pieces by composers such as Handel, Corelli, Tartin and others. Qualifying examination at this level.

CONCENTRATION III: Continuation of above material with the addition of scales in thirds and chromatics; etudes such as Dont, op. 35; Rode; Rovelli and Kreutzer; prepared pieces in the styles represented by Viotti, Haydn, Vivaldi, Bach, and Mozart. Final examination required.

MAJOR I: Material at a level similar to Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination at this level.

MAJOR III: Continued emphasis on material above leading to studies of Campagnoli, Paganini and Wieniawski, *L'Ecole Moderne, Op. 10, No. 1;* prepared pieces such as Mendelssohn, *Concerto;* Bruch, *Concerto;* Mozart and Beethoven Sonatas.

MAJOR IV: Studies by: Campagnoli, *Divertissement No. 6;* Paganini, *Caprice Op. 1, No. 24;* Wieniawski, *L'Ecole Moderne, Op. 10, No. 3.* Prepared pieces such as: Sonatas — any one of the unaccompanied Partitas or Sonatas by J. S. Bach; Concertos: Saint-Saëns, *Concerto in B minor;* Lalo, *Symphonie Espagnole.* Penultimate examination.

MAJOR V: The performance from memory of a representative recital program to be chosen in consultation with the Instructor and the Department Chairman. Final examination.

POST-GRADUATE: Intensive study of the literature. Ability to perform two approved recital programs and two concerti from different periods, including one 20th-century concerto. Demonstration of knowledge and mastery of the general repertoire. Thorough acquaintance with the chamber-music literature involving the candidate's instrument. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

VIOLA

CONCENTRATION I: Thorough study of technique involving left hand position and bow arm. Scales and arpeggios; etudes such as Kreutzer and Fiorillo; prepared pieces of the styles represented by Ariosti and Handel.

CONCENTRATION II: Continued study of left hand and bow arm technique, scales and arpeggios; prepared pieces such as Handel, *Sonata in C major* and Vivaldi, *Sonata in G minor.* Qualifying examination at this level.

CONCENTRATION III: Continuation of above material. Prepared pieces recommended by teacher. Final examination required.

MAJOR I: Material at level similar to Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination at this level.

MAJOR III: Scales and arpeggios through two octaves; studied from the book of Campagnoli, Kreutzer and Gaviniès. Prepared pieces recommended by teacher.

MAJOR IV: The performance from memory of a previously approved sonata recital program of approximately one hour duration, consisting of classical, romantic and contemporary works. Suggested works: Bach, *Gamba Sonatas;* Brahms, *Sonata in E flat;* Brahms, *Sonata in F minor;* Honegger, *Sonata;* Marcello, *Sonata in F;* Milhaud, *Sonata No. 1;* Vitali, *Chaconne.* Penultimate examination.

MAJOR V: The performance from memory of a previously approved recital program lasting one hour. The order of the program should be as follows:

1. Unaccompanied Suite — e.g. any one of the sonatas of Bach or Hindemith.
2. Concerto — e.g. any one of the concertos by Bartok, Serly, or Tansman.
3. Group of pieces — e.g. Beethoven, *Variations Op. 66;* Bloch, *Suite;* Schumann, *Maerchenbilder;* Stravinsky, *Elegy;* Weber, *Andante e Rondo Ongarese.* Final examination.

POST-GRADUATE: Intensive study of the literature. Ability to perform two approved recital programs and two concerti from different periods, including one 20th-century concerto. Demonstration of knowledge and mastery of the general repertoire. Thorough acquaintance with the chamber-music literature involving the candidate's instrument. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

CELLO

CONCENTRATION I: Positioning, fundamental bowing and fingering exercises; scales and arpeggios through two octaves; studies developing lower range of cello; prepared pieces in the styles represented by Corelli, Marcello and Breval.

CONCENTRATION II: Scales and arpeggios through three octaves; double stops through two octaves; studies from Dotzauer, Duport, Matz, Franchomme; prepared pieces to be recommended by teacher. Qualifying examination.

CONCENTRATION III: Scales, etc.; prepared pieces to be recommended by teacher. Final examination.

MAJOR I: Material at a level similar to Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination.

MAJOR III: Scales and arpeggios through four octaves; studies by Popper, Diath, Matz; early Beethoven Sonatas, Bach, *Gamba Sonatas;* Saint-Saëns, *Concerto.*

MAJOR IV: The performance of a previously approved sonata recital program of approximately one hour duration consisting of classical, romantic, and contemporary works. Suggested works: Bach, any of the accompanied Gamba Sonatas; Beethoven, any of the sonatas or variations; Brahms, either of the two sonatas; a sonata by Kodály, Prokofieff, Shostakovitch (accompanied). Penultimate examination.

MAJOR V: Three studies from each of the following: Hugo Becker, Popper. In addition, the candidate will have to perform a previously approved recital program of approximately one hour duration. Suggested works: any of the unaccompanied Bach suites; any of the following concertos: Boccherini, Dvorák, Haydn, Lalo, Saint-Saëns, Schumann; Block, *Pieces from Jewish Life;* Cassado, *Suite;* Nin, *Suite;* Popper: selected group of pieces. Final examination.

POST-GRADUATE: Intensive study of the literature. Ability to perform two approved recital programs and two concerti from different periods, including one 20th-century concerto. Demonstration of knowledge and mastery of the general repertoire. Thorough acquaintance with the chamber-music literature involving the candidate's instrument. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

BASS

CONCENTRATION I: Scales and arpeggios through two octaves; studies by Nanny, Simandl.

CONCENTRATION II: Same as above with the addition of studies by Storch-Hrabe and orchestral passages. Qualifying examination.

CONCENTRATION III: Scales and arpeggios through three octaves. Progressive bow- and finger-technique exercises. Bach, *Arioso;* Eccles, *Sonata;* Fauré, *Après un rêve;* Schubert, *Octet and "Trout" Quintet.* Final examination.

MAJOR I: Material at a level similar to Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination.

MAJOR III: Dragonetti, *Concerto.* The study of orchestral parts from: Mozart, *Magic Flute* and *Marriage of Figaro;* Mozart, *Symphony No. 39;* Weber, Overtures to *Euryanthe* and *Oberon;* R. Strauss, *Till Eulenspiegel.*

MAJOR IV: Koussevitzky, *Concerto;* Nanny, *Caprice No. 1;* Prokofieff, *Quintet;* R. Strauss, *Death and Transfiguration.* Penultimate examination.

MAJOR V: Simandl, *Gradus ad Parnassum* (Twenty-Four Studies); Mozart, *Per questa bella mano-obbligato* for Double Bass and Voice; R. Strauss, *Don Juan;* Stravinsky, *Pulcinella.* Orchestral excerpts: Bach, *Suite in B minor,* Bruckner, *Symphonies;* Wagner, excerpts. Final examination.

GUITAR

MR. STEPHEN FENTOK

CONCENTRATION I: All major and minor scales in two octaves, as well as chord progressions. Chromatic in three octaves. Barred chords and left-hand playing of arpeggios. Studies by: Carcassi, Sor. Works by Bach, Weiss, Gauthier, Reussner, de Visée, Modern Spanish School.

CONCENTRATION II: All major and minor scales in two octaves as well as chord progressions. E-F-F sharp-G major and minor in three octaves. Studies for the left hand, *barré* and arpeggios. Pieces such as: de Visée, *Suite in D minor;* Tarrega, *Prelude;* Ponce, *Prelude.* Suitable works by Bach and from the 20th century. Qualifying examination.

CONCENTRATION III: Works by: Milan, Mudarra, de Narvaez, le Roy, Valderrabano, Besard, Dowland, Frescobaldi, Weiss, Rameau, Bach, Scarlatti, Sor, Turina, De Falla, etc. Final examination.

MAJOR I: Material at the level of Concentration II.

MAJOR II through V: Major works by the following composers: Milan, Mudarra, De Narvaez, Valderrabano, Le Roy, De Visée, Roncalli, Frescobaldi, J. Dowland, R. Dowland, Besar, Chilesotti, Waissel, Weiss, Gauthier, Bach, Reussner, Rameau, Scarlatti, Sor, Coste, Aguado, De Falla, Giuliani, Tarrega, Turina, Albeniz, Torroba, Pedrell, Tedesco, Tansman, Villa-Lobos, Ponce, Apostel, Martin, Krenek, Henze, Milhaud, Auric, Guarneri, Surinach, Poulenc, Rodrigo, Malipiero, Britten, Uhl, Burkhart, Apivor, Jolivet, Kovats, Stadimair, Baur. Final examination includes a concerto or important chamber work.

5.8.8.2 Woodwinds

MISS JEANNE BAXTRESSER, *flute*
MR. DONALD HYDER, *oboe*
MR. EMILIO IACURTO, *clarinet*
MR. GERALD DANOVITCH, *saxophone, clarinet, flute*
PROFESSOR DONALD HUGHES, *saxophone*
MR. ABE KESTENBERG, *saxophone, clarinet*
MR. SIDNEY ROSENBERG, *bassoon*

FLUTE

CONCENTRATION I: Scales and arpeggios in all major and minor keys; Altès, *Flute Method,* Vol. II; Taffanel-Gaubert, *17 Daily Exercises;* Moyse, *Gammes et Arpèges;* Anderson, *18 Studies, Op. 41;* Berbiguier, *18 Etudes;* Sonatas by Handel and Telemann.

CONCENTRATION II: Moyse, *Gammes et Arpèges;* Anderson, *24 Studies, Op. 21;* Koehler, *12 Studies, Op. 33, Book II;* 17th and 18th century concerti. Qualifying examination at this level.

CONCENTRATION III: Andersen, *Etudes, Op. 15* and *33;* Barrere, *The Flutist's Formulae;* Boehm, *24 Caprices, Op. 26;* Moyse, *Scales and Arpeggios.* Chamber music of the 17th and 18th centuries; sonatas by Bach; concerti by Gluck, Gretry and Haydn. Easier contemporary pieces. Sight reading of appropriately graded orchestral excerpts. Final examination.

MAJOR I: Same as Concentration II.

MAJOR II: Same as Concentration III. Qualifying examination at this level.

MAJOR III: Andersen, *Etudes, Op. 30* and *63;* Hughes, *24 Studies;* Moyse, *Technical Studies and Exercises;* Bach, *Suite in B minor* and *Brandenburg Concerto No. 5;* concertos by Mozart; quartets and trios by Mozart and Beethoven. Debussy, *Syrinx;* Fauré, *Fantasia;* Ibert, *Piece for Solo Flutes;* and similar pieces. Sight reading of appropriately graded orchestral excerpts.

MAJOR IV: Andersen, *Virtuoso Studies Op. 60;* Kohler, *8 Exercises, Op. 33,* Book III; Moyse, *Daily Exercises;* Taffanel-Gaubert, *Grandes Etudes de Virtuosité.* Paris Conservatory Pieces. Schubert, *Variations.* Study of orchestral solo passages. Sight reading of appropriately graded orchestral excerpts. Penultimate examination.

MAJOR V: Andersen, *Virtuoso Studies Op. 60;* Moyse, *48 Studies of Virtuosity;* Ibert, *Concerto.* Modern flute solos. Study of orchestral solo passages. Presentation of a previously approved representative recital programme. Sight reading of appropriately graded orchestral excerpts. Final examination.

POST-GRADUATE: Intensive study of the literature. Ability to perform two approved recital programmes and two concerti from different periods, including one 20th century concerto. Demonstration of knowledge and mastery of the general repertoire. Thorough acquaintance with the chamber music literature involving the candidate's instrument. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

OBOE

CONCENTRATION I: Scales. F. Gillet, *Intervals and Staccato;* Sellner, *Exercises in Articulation;* Sellner, *Six First Duos for Two Oboes* (Sonata form).

CONCENTRATION II: Brod, *Twenty Studies;* Sellner, *Six Last Duos for Two Oboes;* Handel, *Sonata in C minor.* Qualifying examination.

CONCENTRATION III: Brod, *Six Advanced Sonatas;* Ferling, *Forty-Eight Studies;* Handel, *Sonata in G minor.* Sight reading of appropriately graded orchestral excerpts. Final examination.

MAJOR I: Same as Concentration II.

MAJOR II: Same as Concentration III. Qualifying examination at this level.

MAJOR III: Andraud, *Vade-Mecum,* and other studies; Handel, *Concerto in G minor;* Telemann, *Sonata in A minor.* Orchestral repertoire. Sight reading of appropriately graded orchestral excerpts.

MAJOR IV: G. Gillete, *Advanced Studies;* Mozart, *Concerto in C major,* and *Quartet for Oboe and Strings.* Orchestral repertoire continued. Sight reading of appropriately graded orchestral excerpts. Penultimate examination.

MAJOR V: Eugene Bozza, *Studies;* Hugo-Bruyany, *Studies;* R. Lamorlette, *Twelve Studies;* Beethoven, *Quintet;* Gordon Jacob, *Concerto;* Mozart, *Quintet;* Vaughan-Williams, *Concerto.* Orchestral repertoire continued. Sight reading of appropriately graded orchestral excerpts. Final examination.

CLARINET

CONCENTRATION I: Scales and arpeggios in B major and C sharp minor through two and a half octaves; in fourths in F major and A minor. Whole-tone scales to be played legato and staccato throughout clarinet range. Labanchi, *Method;* Mozart, Slow movement from *Concerto in A major, K.622;* Weber, Slow movement from *Concertos No. 1 or 2;* Weber, Slow movement from *Duo Concertante, Op. 48.*

CONCENTRATION II: Scales and arpeggios in F sharp major and D sharp minor; in fifths in A major and G minor; in thirds or whole-tone scales through two octaves. A. Perrier, *Etudes de Genre et d'Interprétation;* Labanchi, *Studies;* Weber, *Concertino;* Dunhill, *Phantasy.*

CONCENTRATION III: All major, minor (melodic and harmonic) and chromatic scales and all arpeggios (common chords, dominant and diminished seventh chords) to be played tongued or slurred and phrased (grouped). Transposition of a given passage one tone up, and a half tone down. V. Blancou, *40 Etudes;* A. Perrier, *Recueil de sonates pour l'étude du style classique* (Books I, II, III); Messager, *Solo de Concours;* H. Rabaud, *Solo de Concours;* Weber, *Concertos 1 and 2;* McGinnis,

Orchestral Excerpts, Volumes I and II. Sight reading or appropriately graded orchestral excerpts. final examination.

MAJOR I: Same as Concentration II.

MAJOR II: Same as Concentration III. Qualifying examination at this level.

MAJOR III: Scales and arpeggios as in Major II. Transposition of a given passage one tone up or down. Carl Baermann, *Method*, Books 3, 4 and 5; P. Mimart, *Studies for Clarinet;* Paul Jeanjean, *16 Etudes;* A. Perrier, *20 Studies of Virtuosity;* Beethoven, *Trio for Clarinet, Cello and Piano;* Brahms, *Sonatas I and II;* P. Gaubert, *Fantaisie pour clarinette et piano;* Mozart, *Trio for Clarinet, Viola and Piano;* McGinnis, *Orchestral Excerpts*, Volumes I and II. Sight reading of appropriately graded orchestral excerpts.

MAJOR IV: E. Bozza, *14 Etudes de mécanisme;* A. D. Elia, *12 Studies;* A. Perrier, *22 Etudes modernes;* Brahms, *Trios for Clarinet;* Debussy, *Rapsodie pour clarinette et orchestre;* Louis Spohr, *Concertos;* Robert Stark, *Concertos;* C. M. Widor, *Introduction and Rondo*. Orchestral repertoire. Penultimate examination.

MAJOR V: Transposition of a given passage a minor third up or down. Improvisation of a cadenza. N. Delecluse, *Studies on Orchestral Passages;* Paul Jeanjean, *18 Etudes;* Mozart, *Quintet for Clarinet and Strings;* also quintets of Arthur Bliss, Brahms, Gordon Jacob. Clarinet concertos by Mozart, Busoni, C. Nielsen, Darius Milhaud, Aaron Copland, Nichola Brezovsky. Presentation of a previously approved representative recital programme. Sight reading of appropriately graded orchestral excerpts. Final examination.

POST-GRADUATE: Intensive study of the literature. Ability to perform one approved recital programme and two concerti from different periods, including one 20th century concerto. Demonstration of knowledge and mastery of the general repertoire. Thorough acquaintance with the Chamber Music literature involving the candidate's instrument. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

SAXOPHONE

CONCENTRATION I: Major and minor scales and arpeggios. Chromatic scales. Klose, *Etudes;* Ben Verecken, *Studies*, Book I; Labanchi-Iasilli, Book I.

CONCENTRATION II: Labanchi-Iasilli, Books I and II; Mule-Soussman, Volume I. Advanced studies on chromatics. Transposition. Solos of intermediate difficulty.

CONCENTRATION III: Labanchi-Iasilli, Books II and III; Terschak, *Daily Exercises*. Compulsory solo: Tcherepnine, *Sonatine-Sportive*. Transpositions. Advanced solos. Sight reading of appropriately graded orchestral excerpts. Final examination.

MAJOR I: Same as Concentration II.

MAJOR II: Same as Concentration III. Qualifying examination at this level.

MAJOR III: Ferling, *60 Etudes;* Soussman, *Etudes* (Vol. II); Bozza, *Concertino, Suite* (Scaramouche, Aria, Pulcinella). Compulsory solo: Dautramaille, *Tango and Tarantelle*. One choice solo. Preliminary exercises for top notes. Sight reading of appropriately graded orchestral excerpts.

MAJOR IV: Boehm-Terschak, *53 Etudes;* P. M. Dubois, *Concertstueck;* Glazounov, *Concerto*. Compulsory solo. H. Tomasi, *Ballade*.

MAJOR V: Advanced scales and exercises for top notes. E. Bozza, *12 Caprices;* Ibert, *Concertino da camera*. Glazounov, *Concerto*. Final examination and recital.

POST-GRADUATE: J. Ibert, *Concerto;* Bonneau, *Caprice en Forme de Valse*. Bozza, Etudes. Demonstration of knowledge and mastery of the saxophone's general repertoire and chamber music literature. Preparation of an unfamiliar large-scale work within one week before the final examination. Professional concert maturity.

BASSOON

CONCENTRATION I: Tenor clefs. Major and minor scales. Weissenborn, Books I and II, Milde. Scale studies.

CONCENTRATION II: Legato and staccato. Eugène Jancourt, *Grande Etude pour Basson, Op. 55;* L. Milde, *Twenty-Four Studies in All Keys, Op. 24*.

CONCENTRATION III: Review of previous grades. E. Jancourt, *26 Melodic Studies;* Hindemith, *Sonata;* Milde, *Concert-Studies*. Orchestral studies. Sight reading of appropriately graded orchestral excerpts. Final examination.

MAJOR I: Same as Concentration II.

MAJOR II: Same as Concentration III. Qualifying examination at this level.

MAJOR III: Gambaro, *18 Studies;* Giampieri, *16 Daily Studies;* Milde, *Concert-Studies* (Book I). Concerti by Vivaldi and Mozart. Bach cello suites. Orchestral studies. Sight reading of appropriately graded orchestral excerpts.

MAJOR IV: Dherin-Pierné, *New Technique of the Bassoon;* Milde, *Concert-Studies* (Book II); A. Orefici, *Bravura Studies;* L. Grondahl, *Concerto;* Weber, *Concerto*. Orchestral excerpts. Sight reading of appropriately graded orchestral excerpts. Penultimate examination.

MAJOR V: Bertoni, *12 Modern Studies;* Marcel Bitsch, *Twenty Studies;* Bozza, *15 Daily Studies;* Piard, *16 Characteristic Studies;* Bozza, *Fantasie*. Orchestral repertoire. Sight reading of appropriately graded orchestral excerpts. Final examination.

5.8.8.3 Brass

MR. WILLIAM KARSTENS, *french horn*
MR. JAMES RANTI, *trumpet*
MR. JOHN TABER, *trumpet*
MR. TED GRIFFITH, *trombone, tuba*
PROF. RICHARD LAWTON, *trombone*

FRENCH HORN

CONCENTRATION I: Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic triads in three sharps and flats through one and one-half octaves. Rhythmic studies. Solo material with piano as selected by the instructor.

CONCENTRATION II: Major and relative minor scales and tonic triads in five sharps and flats through one and one-half octaves; chromatic scales through two octaves. Schantl, *Studies;* Pares, *Scale Studies;* Alphonse, *Book I;* Horner, *Primary Studies;* Endresen, *Supplementary Studies,* Mozart, *Concert Rondo;* or equivalent. Qualifying examination.

CONCENTRATION III: All major and minor scales; tonic triads; dominant 7th chords through two octaves. Emphasis on tone production, breath support, embouchure development, technique and articulation. Franz, *Grand Method;* Horner, *Primary Studies;* Alfonse, *Book II;* Pieces from Kaufman, *Twelve Solos* or equivalent.

MAJOR I: Material at the level of Concentration II.

MAJOR II: Qualifying examination based on material at the level of Concentration III.

MAJOR III: Extension of range and technique. Tonal focus and dynamic contrast. Elementary use of the right hand. Scales and arpeggios through two and one-half octaves; transposition to E flat. Kopprasch, *Book I;* Alfonse, *Book III;* Pottag, *Book II,* or equivalent. One or two selections from: Kaufman, *Twelve Solos;* L. Mozart, *Concerto;* Saint-Saëns, *Romance;* or equivalent. Appropriate orchestral excerpts.

MAJOR IV: Extension of range and dynamics, flexibility, endurance, and breadth of tone. Use of right hand, intonation style, and phrasing. All scales, intervals, and arpeggios through three octaves. Transposition to B flat, C, D, and E. Two contrasting studies from: Kopprasch, *Book II;* Alfonse, *Book IV;* Pottag, *Book III;* or equivalent. Two selections from Mozart, *Concerto;* Corelli, *Sonata;* or equivalent. Appropriate orchestral excerpts. Penultimate examination.

MAJOR V: Daily routine. Advanced techniques. All transpositions. Alfonse, *Books V-VII;* Kling, *Etudes;* Gugel, *Studies;* or equivalent. Mozart *Concertos;* Beethoven, *Sonata;* Strauss, *Concerto, Op. 8,* or equivalent. Appropriate orchestral excerpts. Final examination.

TRUMPET

CONCENTRATION I: Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic triads in three sharps and flats through one and one-half octaves. Rhythmic studies. Other material chosen by instructor.

CONCENTRATION II: Major and relative minor scales and tonic triads in five sharps and flats through one and one-half octaves; chromatic scales through two octaves. Arban, *Méthode;* Hering, *40 Progressive Studies;* Endresen, *Supplementary Studies*. Belay, *Pièce Concertante* or equivalent. Qualifying examination at this level.

CONCENTRATION III: Final examination. All major and minor scales; tonic triads; dominant 7th chords through two octaves. Transposition to C. Schlossberg, *Daily Drills;* Concone, *50 Lessons;* Clarke, *Technical Studies;* Williams, *Method;* Godicke, *Concert Etude;* Balay, *Prélude et Ballade*. Orchestral excerpts.

MAJOR I: Material at the level of Concentration II.

MAJOR II: Similar to Concentration III. Qualifying examination at this level.

MAJOR III: Extension of range, technique, tonal focus, and dynamic control. Development of legato, registration, double-tonguing and use of first and third valve slides. All scales, arpeggios and 7th chords through two and one-half octaves. Transposition to A, D, and E flat. Saint Jacombe, *Méthode;* Sachse, *100 Etudes;* Bordogni, *24 Vocalises;* Kopprasch, *Book II;* Caffarelli, *100 Melodic Studies;* Chaplavsky, *Valse Caprice;* Torelli, *Concerto;* Enesco, *Legende*. Orchestral excerpts.

MAJOR IV: Extension of range and dynamics, flexibility, endurance, and breadth of tone. Style, phrasing and intonation. All scales, intervals, and arpeggios. Transposition to A flat, B, E, and F. Bousquet, *36 Celebrated Studies;* Brandt, *Book I;* Petit, *15 Etudes;* Glanz, *Book I;* Tomasi, *6 Etudes;* Kopprasch, *Book II;* or equivalent. Haydn, *Concerto;* Hummel, *Concerto;* Wal-Berg, *Concerto;* Mozart, *Concerto;* or equivalent. Appropriate orchestral excerpts. Penultimate examination.

MAJOR V: Daily routine. Advanced techniques: drills, double- and triple-tonguing. All transpositions. Charlier, *36 Etudes Transcendantes;* Brandt, *Book II;* Bitsch, *20 Etudes;* Glantz, *Book II;* Broiles, *Studies and Duets;* or equivalent. Godicke, *Concerto;* Hindemith, *Sonata;* Giannini, *Concerto;* Bohrnstedt, *Concerto;* Saint-Saëns, *Concerto in E flat;* or equivalent. Appropriate orchestral excerpts. Final examination.

TROMBONE

CONCENTRATION I: Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic triads in three sharps and flats through one and one-half octaves. Rhythmic studies. Arban, *Method;* Rochut, *Book I.*

CONCENTRATION II: Major and relative minor scales and tonic triads in five sharps and flats through one and one-half octaves; chromatic scales through two octaves. Arban, *Method;* Blume, *Studies, Book I;* Rochut, *Book I;* Schantl, *Studies.* Pieces such as Barat, *Andante* and *Allegro;* Croce-Spinelli, *Solo de Concours.* Qualifying examination at this level.

CONCENTRATION III: All major, minor and chromatic scales and arpeggios through two octaves. Tenor clef. Blume, *Book I;* Concone, *Selected Studies;* Blazevitch, *Legato Studies;* Rochut, *Book I;* Guilmont, *Morceau Symphonique;* Blazevitch, *Concert Piece No. 5.* Final examination.

MAJOR I: Material at the level of Concentration II.

MAJOR II: Qualifying examination based on material at the level of Concentration III.

MAJOR III: Extension of range, technique, tonal focus and dynamic contrast. Scales and arpeggios through two and one-half octaves. Kopprasch, *Book I;* Blazevitch, *Clef Studies;* Rochut, *Book II;* Blume, *Book II;* Nahlfeld, *Concertstück;* Desportes, *Fantasie in B flat.* Orchestral excerpts.

MAJOR IV: Extension of range, flexibility, endurance and breadth of tone. Use of Alto and Tenor Clefs. Blazevitch, *26 Sequences;* Blume, *Book III;* Rochut, *Book III;* Sanders, *Sonata in E flat;* Glaubert, *Morceau Symphonique;* Rimsky-Korsakov, *Concerto.* Orchestral excerpts. Penultimate examination.

MAJOR V: Lafosse, *Method;* Ostrander, *F-Attachment;* Rochut, *Book III;* Hindemith, *Sonata;* McKay, *Sonata;* Hartley, *Sonata Concertante.* Orchestral excerpts. Final examination.

TUBA

CONCENTRATION I: Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic triads in three sharps and flats through one and one-half octaves. Rhythmic studies. Schantl, *Studies;* Eby, *Book I.*

CONCENTRATION II: Major and relative minor scales and tonic triads in five sharps and flats through one and one-half octaves; chromatic scales through two octaves. Pares, *Scale Studies;* Eby, *Book I;* Arban, *Method;* Endressen, *Supplementary Studies.* Pieces such as: Cohen, *Romance and Scherzo.* Qualifying examination at this level.

CONCENTRATION III: All major and minor scales, tonic triads, dominant 7th chords through two octaves. Transposition down one octave. Schlossberg, *Daily Drills;* Bell, *Book I; Studies.* Solos such as Tcherepnin, *Andante;* Walters, *Tarantelle.* Final examination.

MAJOR I: Material at the level of Concentration II.

MAJOR II: Qualifying examination based on material at the level of Concentration III.

MAJOR III: Extension of range, technique, tonal focus and dynamic control; broken arpeggios, development of legato style, double-tonguing and use of fourth valve. All scales and chords through two and one-half octaves. Treble clef study. Kopprasch, *Book I;* Lachmon, *26 Etudes;* Bach, *Air and Bourrée;* Troje-Miller, *Sonatina Classica;* Sowerby, *Chaconne.* Orchestral excerpts.

MAJOR IV: Extension of range, flexibility, endurance, and breadth of tone. Scales in thirds, development of melodic style, phrasing, intonation, triple-tonguing and use of alternate fingerings. Tenor clef. Kopprasch, *Book II;* Blazevitch, *Book I;* Rochut, *Book II;* Blume, *Book III;* Dubensky, *Fantasy;* Bozza, *Allegro et finale;* Mozart, *Concerto, K.447.* Orchestral excerpts. Penultimate examination.

MAJOR V: Advanced techniques, development of solo style, jazz idioms; use of F and C tubas. Transposition. Muller, *Technical Studies;* Blazevitch, *Book II;* Rochut, *Book III;* Belgiudice, *12 Etudes;* Bernard, *40 Etudes;* Bach, *Studies for Unaccompanied Cello;* Hindemith, *Sonata;* Vaughan-Williams, *Concerto;* Beversdorf, *Sonata;* Strauss, *Concerto, Op. 11.* Orchestral excerpts. Final examination.

5.8.8.4 Percussion

M. PIERRE BELUSE

CONCENTRATION I: Snare drum, bass drum and cymbals: Podemski, *Method*, Part I. Xylophone: Goldenberg, *Modern School;* all major and minor scales. Sight reading.

CONCENTRATION II: Delecluse, *Méthode de caisse-claire, Nos. 1-8;* Béluse, *Basic Mallet Technique;* Béluse, *Basic Tympani Technique*. Selected repertoire.

CONCENTRATION III: Delecluse, *Méthode de caisse-claire;* Wilcoxson, *Swing Solos;* Delecluse, *Vingt études pour timbales*. Selected repertoire. Final examination.

MAJOR I: Material at the level of Concentration II.

MAJOR II: Material at the level of Concentration III. Qualifying examination.

MAJOR III: Delecluse, *Méthode de caisse-claire; Vingt études* (d'après Kreutzer); *Méthode de vibraphone; Vingt études pour timbales;* Wilcoxson, *Swing Solos*. Selected repertoire.

MAJOR IV: Delecluse, *Douze études pour caisse-claire, Nos. 1-6; Vingt études* (d'après Kreutzer); *Méthode de vibraphone; Vingt études pour timbales*, Nos. 10-14. Selected repertoire. Penultimate examination.

MAJOR V: Delecluse, *Douze études pour caisse-claire*, Nos 7-12; *Vingt études pour timbales*, Nos. 15-20; selected excerpts from the orchestral and contemporary repertoire. Final examination and recital.

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McGill University

FACULTY OF RELIGIOUS STUDIES

1973-1974

William and Mary Hall
3520 University Street
Montreal 112, Canada
Telephone (514) 392-4800

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CALENDAR FOR SESSION 1973-1974

	1973
August 13, Monday to August 24, Friday	Supplemental examinations
August 20, Monday	Freshman orientation and pre-registration counselling begins.
September 10, Monday	Registration: B.Th. all years (9 a.m. to 5 p.m., Currie Gymnasium)
September 11, Tuesday and September 12, Wednesday	Registration: Master's degrees candidates (9 a.m. to noon, W. and H. Birks Building)
September 13, Thursday and September 14, Friday	Registration: Doctoral candidates (9 a.m. to noon, W. and H. Birks Building)
September 18, Tuesday and September 19, Wednesday	Registration: E2 students (9 a.m. to 5 p.m., Currie Gymnasium)
September 19, Wednesday	Assembly for all graduate and undergraduate students (10 a.m. W. and H. Birks Building Auditorium)
September 20, Thursday	ALL CLASSES BEGIN
October 2, Tuesday and October 3, Wednesday	Alumni Reunion and the Birks Lectures: Prof. W. Cantwell Smith, Dalhousie University, Halifax
October 8, Monday	Thanksgiving Holiday
November 6, Tuesday	Fall Convocation
December 19, Wednesday	Last day of classes
	1974
January 3, Thursday to January 18, Friday	Examinations in first term courses (if required)
January 21, Monday	Second Term begins.
March 1, Friday and March 2, Saturday	Mid-Term holiday
April 12, Friday to April 15, Monday	Easter vacation
April 19, Friday	Last day of classes
April 22, Monday to May 8, Wednesday	Examinations in second term courses (if required)
June 5, Wednesday to June 8, Saturday	Convocations

1 STAFF*

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

Eigil Pedersen, B.A. (S.G.W.U.), Ed.D. (Harv.), M.A.
Vice-Principal (Academic)

Stanley B. Frost, B.D., M.Th. (London), Dr. Phil. (Marburg), D.D. (Hon.) (Vic., Tor.), D. Litt. (Hon.) (Mem.)
Vice-Principal (Administration and Professional Faculties)

Dale Thomson, B.A. (Alta.), Dip.Pol.Sc. (Paris), Ph.D. (Paris)
Vice-Principal (Planning)

Allan C. McColl, D.F.C., B.Com., C.A.
Director of Finance

John H. Holton, B.Com. (Tor.)
Secretary of the Board of Governors

Colin M. McDougall, D.S.O., B.A.
Registrar

George Johnston, M.A., B.D., D.D. (Hon.)(Glas.), Ph.D. (Cantab.)
Dean of the Faculty

1.2 TEACHING STAFF OF THE FACULTY OF RELIGIOUS STUDIES

Stanley Brice Frost, B.D., M.Th. (Lond.), Dr. Phil. (Marburg), D.D. (Hon.) (Vic., Tor.), D.Litt. (Hon.) (Memorial)
Professor of Old Testament Language and Literature

Eric George Jay, M.A. (Leeds), B.D., M.Th., Ph.D. (London), D.D. (Hon.) (Montreal Diocesan)
Professor of Historical Theology

George Johnston, M.A., B.D., D.D. (Hon.) (Glas.), Ph.D. (Cantab.)
Professor of New Testament Language and Literature

Joseph Cumming McLelland, B.A. (McM.), M.A., B.D. (Tor.), Ph.D. (Edin.)
Professor of Philosophy of Religion

John Arthur Boorman, B.A. (Alta.), M.A., Ph.D. (Col.)
Associate Professor of Theological Ethics

John Charles Kirby, S.T.B. (G.T.S., New York), B.A., S.T.M., Ph.D.
Associate Professor of New Testament

Donald Neil MacMillan, B.A., M.A., B.D. (Presbyterian Col., Montreal), Ph.D. (Edin.)
Associate Professor of Historical Theology

Monroe Peaston, M.A. (Oxon.), B.D. (Lond.), Th.D. (U.T.S., New York)
Associate Professor of Pastoral Psychology

Charles Joseph Adams, A.B. (Baylor), Ph.D. (Chic.)
Professor and Director, Islamic Institute

Robert Charles Culley, M.A., B.D., Ph.D. (Tor.)
Associate Professor of Old Testament

Keith Markell, B.A., Dip.Theol. (Presbyterian Col., Montreal), Ph.D. (Chic.), D.D. (Hon.) (Knox, Toronto).
Associate Professor of Church History

Robert Walter Stevenson, B.A., B.D., A.M. (Harvard)
Assistant Professor of Comparative Religion

Donna Ruth Runnalls, B.A. (U.B.C.), B.D., Ph.D.(Tor.)
Assistant Professor of Old Testament and Judaism

1.3 LIBRARY STAFF

Miss Norma Johnston, B.A. (S.G.W.U.), B.L.S., M.L.S.	Head Librarian
Miss Winsome Gibson, B.A., M.L.S.	Library Assistant
Miss Franceen Van	Library Assistant
Miss Noelle Willems	Library Assistant
Mr. Edwin Ford	Library Assistant

2 GENERAL INFORMATION

The Faculty of Religious Studies is located in the handsome building (erected 1930) known as the William and Henry Birks Building, formerly Divinity Hall, at 3520 University Street, Montreal 112, P.Q. (Telephone 514–392-4828). Besides the usual classrooms, offices, common rooms, and auditorium, this building contains a lovely chapel in the Collegiate style and a library, with a pleasant reading room and access to the stacks for all authorized readers.

The Faculty was known as the Faculty of Divinity until 1970. It has an interesting history that goes back to the pioneering ecumenical days of 1912 when four Theological Colleges in Montreal, the Congregational; Montreal Diocesan Theological College; Wesleyan Methodist; and Presbyterian, formed a Joint Board for academic study, leaving each denominational College to provide its own professional training for various types of Christian ministry. All these Colleges had become affiliated with McGill in the nineteenth century and it was natural that negotiations should lead to the creation in 1948 of a Faculty of Divinity that assumed the academic functions of the Joint Board.

Soon after its founding, the Faculty of Divinity was allowed to introduce programs leading to a Master's degree and to the Ph.D. This graduate work has grown enormously since 1964. At the same time an increasing number of students took courses in Religion offered by the Divinity teaching staff to those enrolled for degrees in other Faculties and Schools. Changes in the educational policy of the Provincial Government added to the pressures for change.

Consequently, the name of the Faculty was changed in order to reflect its total offerings and orientation; a major program in the B.A. degree course was introduced to be a basis for graduate work; and new regulations were approved for B.Th., M.A. and Ph.D. degrees.

The B.Th. is a first professional degree, but it does not in itself qualify for employment in religious institutions. It is expected that the three associated Theological Colleges – Montreal Diocesan Theological College of the Anglican Church of Canada, the Presbyterian College, Montreal, the United Theological College of The United Church of Canada, all located in close proximity to the University campus – will continue to direct their ordination candidates and other students to proceed by way of an accredited B.A. (or the equivalent) either to the B.Th. or the S.T.M. Because of the financial support given by the Colleges to the University Faculty, tuition fees are remitted to those who are duly registered in a Theological College as candidates for the Christian ministry. (Students should consult the College Principals for further information about Church requirements and the common year of professional training and supervised field education which the Colleges provide for those who have graduated with the B.Th. or the S.T.M..)

The Faculty as well as the Colleges strongly urge prospective students to complete a B.A. with a major in religious studies (i.e. approximately 50% of the course work) or an honours degree in Arts, with a view to entering the S.T.M. program if possible. (See Sec. 4.1 below for the McGill Religious Studies program in the B.A.)

It should be noted that one biblical language, usually Greek, is required by some of the Churches. Ministerial students are encouraged to qualify in Greek *before* entering this Faculty; but arrangements will be made to assist those who are unable to do so.

2.1 ADVANCED STANDING

Entrants who have a B.A. or equivalent degree will be admitted to B.Th.2.

Applicants who have an accredited B.D. or M.Div., with good second class standing, in addition to a recognized B.A., may complete the S.T.M. in one year or may enter the M.A. program.

2.2 APPLICATION AND REGISTRATION

a) Intending candidates for the B.Th. should submit to the Dean an application with supporting documents as early as possible and not later than August 1, 1973. Supporting documents are: official transcripts of previous academic work, and two letters of reference.

b) Registration for the B.Th. will take place on September 10, 1973. Those who register later will be required to pay a special fee unless exempted by the Registrar for sufficient reasons.

c) For the S.T.M., M.A. and Ph.D. degrees applications must be made with the necessary transcripts and letters of reference to the *Dean of Religious Studies* in order that appropriate recommendations may be made to the Faculty of Graduate Studies and Research which ultimately controls all advanced degree programs. In view of large increases in enrolment in recent years it is advisable to make early application.

d) The *sessional inscription* of returning graduate students and new admissions to graduate study is conducted by mail. Forms and fee sheets are sent out in May or June each year and these should be returned to the Dean of Religious Studies by the date indicated.

Candidates for Master's degrees must register on September 11 and 12 and Ph.D. candidates similarly on September 13 and 14. Non-resident students may attend in person to pay the fee or may send it by mail.

2.3 CLASSES OF STUDENTS

2.3.1 REGULAR

Students who are admitted to the B.Th. program and who are taking the full number of courses per session (5 full courses = 30 credits).

2.3.2 LIMITED

Students admitted to the B.Th. who may be permitted in exceptional cases to extend their course beyond the normal period.

2.3.3 PARTIAL

Students not registered as proceeding to a degree but who receive the permission of the Dean and Faculty to undertake certain courses.

2.3.4 GRADUATE

Students of this Faculty who are enrolled in the Faculty of Graduate Studies and Research as candidates for the degrees of S.T.M., M.A. and Ph.D.

2.4 FEES

1) The University fee for full-time B.Th. students is $585.00 per session. This includes tuition, registration, examinations, libraries, graduation, health service, athletics, and membership in the Students' Society. A fee of $15.00 must accompany an application.

2) Limited students (not ordination candidates) will pay $200.00 for each full course. If they take three courses, they will also pay the Health Service fee of $12.00 (if in a McGill residence, $15.00), the Athletics fee of $15.00, and the Students' Society fee.

3) Partial students may take no more than two full courses. The fee is $200.00 for each full course.

4) Ministerial candidates duly registered in one of the associated Theological Colleges are exempted from tuition fees; but they must pay at the due date the composition fee covering Health Service, Athletics and membership in the Students' Society. This amounts to $52.00 (or, if in a McGill residence, $55.00).

5) The fee for full-time graduate study is $652.00 per session. Certified ministerial candidates in the S.T.M. course are exempted from tuition fees but pay the composition fee (see above).

2.4.1 PAYMENT OF FEES

1) Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due within 10 days after registration, the second instalment before January 15, 1974. No invoice will be sent.

A late payment fee of $5.00 is charged to undergraduates for payment after the specified dates, $25.00 to graduate students.

2) Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office *before August 1, 1973,* otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all upper year students, either with their reports of Sessional Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this for payment of the first instalment of fees, must obtain from the Student Aid Offices, McGill University, a Permit to Delay Payment of Fees.

The second instalment is due January 15, 1974. No invoice will be sent. A *late payment fee* of $5.00 is charged for payment after the specified dates.

3) Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

> As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

2.5 EXAMINATIONS

The pass mark in B.Th. courses is 55% for "satisfactory" standing (see 4.2 "Regulations for the B.Th. degree"); S.T.M. and M.A. courses 65% and in Ph.D. courses 70%.

First class standing in the doctoral program is 75%; in the S.T.M. and M.A. it is 80% and over; in the B.Th. standing is expressed by a Grade Points system (see 4.3.2).

3 FELLOWSHIPS, SCHOLARSHIPS AND AWARDS

3.1 AWARDED BY THE FACULTY OF RELIGIOUS STUDIES

3.1.1 W. M. BIRKS AWARDS

B.Th. Third Year Prize. $100.00 to the student with highest standing in the third year of the B.Th. program.

S.T.M. Prize. $100.00 to a candidate who obtains first-class standing, awarded at the discretion of the Faculty.

M.A. Prize. $100.00 to a candidate who does distinguished work in the M.A. program, awarded at the discretion of the Faculty.

3.1.2 SAMUEL FINLEY MEMORIAL BURSARY

$150.00 for graduate students in course; awarded at the discretion of the Dean of Religious Studies.

3.1.3 GORDON R. STEPHEN JR. BURSARY FUND

Available for students in the Faculty who are looking forward to some branch of the Christian Ministry. The Faculty recommends to the Student Aid Officers of the University.

3.1.4 HOUSTON BURSARY

$400.00 for students studying for the ministry of the Presbyterian Church in Canada or The United Church of Canada, with preference to any whose mother tongue is French.

3.1.5 NEIL STEWART PRIZE

$150.00 to a student or students studying biblical Hebrew and duly enrolled in the Faculty of Religious Studies for a degree program.

3.2 AWARDED BY THE UNIVERSITY

S.T.M., M.A. and Ph.D. candidates are eligible for Graduate Fellowships and Scholarships. Application must be made before February 1. For Canada Council grants, Quebec Provincial scholarships and bourses, and similar Doctoral Fellowships in Religion or Theology, see *General Announcement, Scholarships, Bursaries, Prizes, Medals and Loan Funds.*

The University Student Aid Officer is Mr. J. Stanley Kennedy, Room 110, F. Cyril James (Administration) Building.

3.3 AWARDED BY THE ASSOCIATED THEOLOGICAL COLLEGES

Students of these Colleges are eligible for grants while they are candidates for University degrees and they should consult the College authorities about them.

The Montreal Diocesan Theological College and residence is situated at 3473 University Street; Principal, Professor Monroe Peaston, M.A., Th.D.

The Presbyterian College, Montreal, is at 3495 University Street; Acting Principal, Very Rev. C. Ritchie Bell, D.D.

The United Theological College, Montreal, has its office at 3473 University Street; Principal, Professor J. Arthur Boorman, M.A., Ph.D.

4 COURSES OF INSTRUCTION

4.1 THE MAJOR PROGRAM IN RELIGIOUS STUDIES (available as part of the McGill B.A. Curriculum)

Every general student who enters first year University in 1971-72 and thereafter is required to follow a coherent program of study that covers three fifths of his total work for a degree.

The remainder consists of free options. A major program comprises nine full courses or the equivalent in half courses, as follows:

1) *Six* courses to be chosen from the program in Religious Studies (see 4.1.1);

AND

2) *Three* courses to be chosen from EITHER the "Related Courses" as listed in 4.1.3 (others may be accepted by the Chief Adviser for Religious Studies, W. and H. Birks Building); OR *two* consecutive courses in an approved language (Hebrew, Greek, Arabic or others), and *one* "Related Course".

NOTE: Students are required to take at least one course in a religious tradition other than their own.

4.1.1 RELIGIOUS STUDIES

260-114D **HISTORY OF RELIGION.** (6 credits) An introduction to the Buddhist, Christian, Hindu, Jewish and Muslim religious traditions.
R.W. Stevenson and Staff

260-200D **RELIGIOUS TRADITIONS OF THE ANCIENT NEAR EAST.** (6 credits) The religion of Ancient Israel in the setting of the Ancient Near East: a brief consideration of religion in general, its origin, nature and study; other religions of the Ancient Near East, e.g. those of Egypt and Mesopotamia; the religion of Ancient Israel. D.R. Runnalls

260-280D **NEW TESTAMENT GREEK.** (6 credits) An introduction to the language.
T.B.A.

260-300A **POST-BIBLICAL JEWISH TRADITION.** (3 credits) The origins of Rabbinic Judaism: a survey of Jewish history and thought from Ezra to the Tannaim; oral tradition; Torah interpretation in the Mishnah and Midrashim.
D.R. Runnalls

260-301B **POST-BIBLICAL JEWISH TRADITION.** (3 credits; *prerequisite: 260-300A or the consent of the lecturer.)* The religion and literature of sectarian groupings: Apocalyptic thought; Wisdom; Dead Sea Scrolls; Josephus. D.R. Runnalls

260-310D **THE NEW TESTAMENT – ITS MAKING AND MEANING.** (6 credits) The beginnings of the Christian Movement: the mission and achievement of Jesus. Early Christian Missions and the growth of institutions. 260-200D is a desirable but not mandatory previous course. G. Johnston

260-320D **A HISTORY OF CHRISTIAN THOUGHT.** (6 credits) A survey of the development of Christian thought from the post-apostolic period to the present day, in relation to the concurrent cultural and philosophical movements. The work of prominent Christian thinkers, ancient, medieval and modern, will receive special attention. E.G. Jay

*260-322A **THE ANCIENT CATHOLIC CHURCH (TO A.D.325).** (3 credits) This course covers the growth of the Christian tradition in the period from the reign of Nero to the Council of Nicaea A.D.325. Special attention is paid to the setting within Roman Imperial History. Lectures are given on the outstanding teachers of the Christian faith. G. Johnston

*260-323B **THE ANCIENT CATHOLIC CHURCH (A.D.325-604).** (3 credits) This course is a continuation of 322A and covers the period from A.D.325 to 604. Special attention is paid to the development of Christian theology, the Eastern Byzantine Church and the significance of the Papacy. G. Johnston

260-340B **RELIGION AND THE SCIENCES.** (3 credits) Philosophy of science and of religion have created a more positive dialogue on questions of method, symbolism and rationality. We examine key issues (e.g. creation and evolution; objectivity and involvement; determinism and freedom) raised by natural and social sciences, and various possible solutions. J.C. McLelland

260-345A **RELIGION AND THE ARTS.** (3 credits) Studies in relationships between religious symbolism and aesthetic forms. Literary criticism will provide an approach to comparative analysis of art forms as conveyors of images of man, critics of social types, and forms of ultimate concern. J.C. McLelland

260-361A **RELIGIOUS BEHAVIOUR: AN INTRODUCTORY STUDY.** (3 credits) This course studies some significant aspects of religious life and some contemporary religious phenomena. It also directs attention to religious growth, the religious personality, and the psychological attack on religion. Its main aim is to establish criteria for distinguishing between good religion and bad and thus to estimate the meanings and function of religion in personal life. M. Peaston

260-370A **THE HUMAN CONDITION.** (3 credits) A critical examination of representative theories about man, his situation and his values in the light of traditional interpretations of Christian anthropology and ethics, together with an attempt to formulate some contemporary clues in response to man's search for meaning. No prerequisites; but Biology 177—013A and 014B — "Collaborative Studies in Science and Human Affairs" — would be an excellent preparatory course. J.A. Boorman

260-380D **ADVANCED NEW TESTAMENT GREEK.** (6 credits) Advanced course in the language. P.N. Smyth

260-390D **HEBREW LANGUAGE.** (6 credits) Introduction to the language. D.R. Runnalls

*260-440D **RELIGION AND THE MODERN MIND.** (6 credits) Three main questions are discussed: What is religion? How are faith and reason related? What is man's nature and destiny? These are approached by a survey of the issues in the first term, and related to contemporary themes in the second — the rise of materialism and atheism in the 19th-20th centuries, the role of the intellectual and artist today, the future of man. J.C. McLelland

260-450D **THE ISLAMIC TRADITION.** (6 credits) The Islamic Community and the elements of its tradition — scripture, prophet, doctrine, practices, institutions — considered historically and in terms of religious meaning. C.J. Adams

260-451D **THE HINDU AND BUDDHIST TRADITIONS.** (6 credits) An introduction to the Hindu and Buddhist religious traditions, their history, faith and practice. R.W. Stevenson

260-490D **HEBREW TEXTS.** (6 credits) Advanced course in the language. R.C. Culley

260-496A Special Studies. Topics to be arranged. (3 credits) Staff

260-497B Reading and research for Major students. (3 credits) Staff

260-498B Research Seminar. (3 credits) Staff

260-499A Topics to be arranged for Major students. (3 credits) Staff

** Not given in 1973-74.*

4.1.2 LANGUAGES

Elementary and advanced courses in biblical Hebrew and New Testament Greek are available as above. Courses in Arabic are available in the Institute of Islamic Studies. For B.A. credit students must reach an acceptable level in advanced courses. Instruction in the language of some other religious tradition (e.g. Ancient Egyptian and Sanskrit) may be available in a given year.

4.1.3 RELATED COURSES

The following are suggested as desirable, but the list is not complete. It should be noted that in some cases there are prerequisites to be fulfilled; in others, special permission should be sought from the instructor or the Dean of Arts or the Dean of Religious Studies.

4.1.3.1 ANTHROPOLOGY

151-303B	HUMAN EVOLUTION
151-309A	ANTHROPOLOGY OF RELIGION
151-409B	MYTH AND RITUAL

4.1.3.2 ART HISTORY

123-211D	ANCIENT ART AND ARCHAEOLOGY
123-312D	MEDIEVAL ART
123-313D	WESTERN MEDIEVAL PAINTING

4.1.3.3 CLASSICS

114-302D	GREEK MYTHOLOGY

4.1.3.4 EDUCATION

415-209B	THE SEARCH FOR AUTHENTICITY

4.1.3.5 ENGLISH

120-235D	TRAGEDY
120-315B	MILTON
120-323A	MIDDLE ENGLISH
120-348B	STUDIES IN LITERARY FORM

4.1.3.6 HISTORY

101-205D	BYZANTINE HISTORY AND CIVILIZATION
101-206D	HISTORY OF EASTERN EUROPE (from 4th Century)
101-207D	A HISTORY OF THE JEWS FROM LATE CLASSICAL TIMES TO THE PRESENT
101-208D	THE DEVELOPMENT OF EAST ASIAN CIVILIZATION
101-209D	ISLAMIC CIVILIZATION FROM THE RISE OF ISLAM TO THE ABOLITION OF THE CALIPHATE
101-317D	HISTORY OF THE JEWS FROM 1700 TO THE PRESENT
101-493D	RACE AND RELIGION IN FRENCH-CANADIAN POLITICS

4.1.3.7 ITALIAN

132-325A	DANTE AND THE MIDDLE AGES

4.1.3.8 JEWISH STUDIES

135-415D	MAJOR IDEAS AND MOTIFS OF CLASSICAL JUDAISM

4.1.3.9 MUSIC

214-325D	MUSIC CULTURE OF THE WORLD
214-415D	MUSIC OF THE MIDDLE AGES AND THE RENAISSANCE.

4.1.3.10 PHILOSOPHY

107-302B	ETHICS
107-331D	PHILOSOPHY OF RELIGION
107-341B	MEDIEVAL PHILOSOPHY
107-405D	MORAL PHILOSOPHY
107-483A	SEMINAR IN SYSTEMATIC PHILOSOPHY

4.1.3.11 SOCIOLOGY

166-352B	THE SOCIOLOGY OF RELIGION

Note: See also Jewish Studies Program in Arts and Faculty of Music courses.

4.1.4 ADVISER

Students taking courses from the B.A. program in Religion as either major subjects, electives for other programs, or free options, should consult the Chief Adviser, the William and Henry Birks Building, prior to registration.

4.2 REGULATIONS FOR THE B.Th. DEGREE

4.2.1 ADMISSION

Admission to the B.Th. is granted to any qualified person, whatever his religious affiliation, who wishes to pursue studies in religion and theology at first degree level. In the Province of Quebec the B.Th. fulfils the requirements for a "first professional degree".

Candidates shall normally be required to give satisfactory evidence of one of the following before their enrolment for this degree:

a) The academic certificate or diploma of a Quebec CEGEP. This should normally include a course of Introduction to World Religions, and may also include other courses in the study of religion;

b) Equivalent standing to CEGEP from another Canadian province or from a country with a different system of post-secondary education. This may include at least one successful year of study in a recognized University or College (e.g. first year Arts in a four year pass Arts degree); in some cases additional credits in Arts may be required from students not educated in Quebec;

c) A bachelor's degree in Arts or Science or Engineering or Commerce or Education or Music or the like, whether it contains courses in religion or theology, or not.

4.2.2 THE PROGRAM

The course extends over three academic sessions (B.Th.1, B.Th.2, B.Th.3) for all those admitted under 2a and 2b above. Those who have graduated with a B.A. or equivalent degree will be exempted from B.Th.1 and admitted to B.Th.2. The normal load consists of five half courses (15 credits) each term. Some courses are "required", others are "elective",

B.Th.1 courses are those listed above in the B.A. curriculum (4.1.1, Religious Studies, and 4.1.3, Related Courses), with at least two full courses (12 credits) from the latter group.

Students who wish to take this degree without primary reference to the Christian tradition will choose their courses in a planned sequence, and will be free to take any of the courses in religion and theology available in the University and approved by the Dean of Religious Studies.

4.3 THE CREDIT SYSTEM

4.3.1 CREDIT REQUIREMENTS

a) All full courses in Religious Studies have a value of 6 credits.

b) A total of 90 credits must be accumulated in order to qualify for the B.Th. degree. The normal course load in any academic session is five full courses — 30 credits.

c) Not more than 30 credits may be allowed for courses taken before coming to McGill, or in study undertaken or subjects passed in an unorthodox but approved manner.

4.3.2 GRADING

a) Competence in a course may be determined by examinations and/or essays, or by other means chosen by the instructor and approved by the Dean.

b) The following grades are used:

A – 80%	– 100%	= 4 points
B – 65%	– 79%	= 3 points
C – 55%	– 64%	= 2 points
D – 45%	– 54%	= 1 point
F – 0%	– 44%	= 0 points

c) Grades A, B and C are satisfactory passes. D is a conditional pass; F is a failure.
d) A Grade Point Average (GPA) is obtained by dividing the total points by the number of courses.
A Cumulative Grade Point Average (CGPA) is compiled, using all the student's B.Th. work to date.

4.3.3 STANDING

a) There are three categories of standing:

Satisfactory:	A GPA of 2.0 or better.
Probationary:	A GPA between 1.5 and 1.9.
Unsatisfactory:	A GPA below 1.5.

b) A student with a *high* GPA (at least 3.2) may take more than the normal five full courses and is encouraged to do so.
c) A student with *probationary* standing will be allowed to take no more than four full courses and must raise his CGPA to satisfactory within one year.
d) A student with *unsatisfactory* standing will have to withdraw, or seek readmission as a probationary student with special permission from the B.Th. Committee and the Dean.
e) The overall record (CGPA) must be *satisfactory* before a student can be recommended for the degree.
f) Normally a student must accumulate the required 90 credits within a period of *five years* from the date of entrance into the B.Th. program.
g) Qualification for the *award* of the degree shall include all required courses with satisfactory standing, and in addition the accumulation of sufficient acceptable credits through optional courses to make a total of 90 credits.
h) The B.Th. degree may be awarded *With Honours* if a student has accumulated 96 credits (i.e. one additional full course with a grade of B or better) and if his CGPA is 3.2 or better.

NOTE: It is understood that students from the associated Theological Colleges have to fulfil certain Church requirements. Their choice of electives is to be made in consultation with the Principal of their College. But the University expects such students to give full time study to their academic courses for the B.Th. Professional and vocational courses (e.g. leading to ordination) are expected to follow the completion of the B.Th. degree.

4.4 B.Th. COURSES 1973-74

4.4.1 B.Th.1

Five courses (30 credits) chosen in consultation with the Chairman of the B.Th. Committee from the courses in the Arts curriculum in Religious Studies or Related courses (see 4.2.2 above). It is recommended that Greek 280D be included (especially by prospective ordinands).

4.4.2 REQUIRED COURSES IN B.Th.2

260-303D **OLD TESTAMENT STUDIES.** Reading and interpreting representative selections from the Old Testament in English translation, with some attention to approaches developed by historical-critical scholarship and to background information such as history, geography, and archaeology. R.C. Culley

260-310D THE NEW TESTAMENT: ITS MAKING AND MEANING. The beginnings of the Christian Movement: the mission and achievement of Jesus. Early Christian Missions and the growth of institutions. Religion 200D is a desirable but not mandatory previous course. G. Johnston

260-324D MEDIEVAL AND REFORMATION CHURCH HISTORY. A survey of the main developments in the history of Christianity from *ca.* 800 to 1650. Use will be made of selected readings from primary and secondary sources. H.K. Markell

260-341A INTRODUCTION TO PHILOSOPHY OF RELIGION. For those lacking a comparable undergraduate course. Surveys the basic themes of the subject, including theistic arguments, values and destiny, the problem of evil, religious language. J.C. McLelland

260-350B INTRODUCTION TO WORLD RELIGIONS. A study of elements of the major religious traditions and a consideration of some problems of the Christian approach to other traditions. R.W. Stevenson

4.4.3 REQUIRED COURSES IN B.Th.3

260-430B TWENTIETH CENTURY THEOLOGY. A study of the principal theological trends of the 20th century and of its major theologians, including Harnack, Barth, Bultmann, Bonhoeffer and Tillich. E.G. Jay

260-441A TWENTIETH CENTURY PHILOSOPHY OF RELIGION. An advanced course illustrating "philosophical options and theological choices" – positivism, existentialism, empirical and process thinking, history and hope. J.C. McLelland

4.4.4 ELECTIVE COURSES FOR B.Th.2 AND B.Th.3

260-280D ELEMENTARY NEW TESTAMENT GREEK. An introduction to the grammar and syntax of New Testament Greek. T.B.A.

*260-321D HISTORY OF CHRISTIAN LITURGY. A survey of the history of Christian Worship, with special reference to the Classical, Reformation, and Modern Periods. J.C. Kirby

*260-330A REFORMED THEOLOGY. A study of Luther, Zwingli, Bucer, Calvin and other Reformed theologians, with particular reference to the historical development of their teaching. D.N. MacMillan

260-331A CONTEMPORARY CATHOLIC THEOLOGY. An introduction to contemporary Christian thought from within a Catholic perspective. This study will include an examination of recent reinterpretations of the traditional understanding of God and man in relation to the world of today. E.K. Malloy

260-361A RELIGIOUS BEHAVIOUR: AN INTRODUCTORY STUDY
This course studies some significant aspects of religious life and some contemporary religious phenomena. It also directs attention to religious growth, the religious personality, and the psychological attack on religion. Its main aim is to establish criteria for distinguishing between good religion and bad, and thus to estimate the meanings and function of religion in personal life.
M. Peaston

260-371A THEOLOGICAL ETHICS. A study of the biblical and theological foundations of Christian ethics, and the nature, application and relevance of the Christian norm. J.A. Boorman

260-380D ADVANCED NEW TESTAMENT GREEK. Translation and Exegesis of selected New Testament texts. P.N. Smyth

260-390D ELEMENTARY BIBLICAL HEBREW. An introduction to the grammar and syntax of biblical Hebrew. Emphasis is placed on both the oral and the written language. D.R. Runnalls

*260-405A THE THEOLOGY OF THE OLD TESTAMENT. A study of Old Testament theology based on selected writings. R.C. Culley

260-407A THE WRITINGS. A study of a major book from the Writings of the Old Testament such as Psalms, Job, or Proverbs in English translation. R.C. Culley

*260-408B THE PROPHETS. A study of a major prophet in the context of the prophetic tradition in the Old Testament. R.C. Culley

260-410A MAJOR MOTIFS IN NEW TESTAMENT THEOLOGY. Attention is focused on Jesus' theology (e.g. in his parables), on Paul and John and the author of Hebrews. Unity and diversity of New Testament teaching, the images used, and other special topics are also discussed (in seminars). G. Johnston

*260-420B CANADIAN CHURCH HISTORY. A survey of the major Christian traditions in Canada from the settlement of New France to the present. Lectures and seminars with use, where possible, of primary source materials. H.K. Markell

260-422B MODERN CHURCH HISTORY. A study of major trends and movements within Christianity since 1650. Special attention will be given to the Anglican, Presbyterian and Methodist traditions. H.K. Markell

260-431B CHURCH, MINISTRY AND SACRAMENTS. A study of what Christians have believed, do believe and, by implication, ought to believe, concerning these fundamental themes of the Christian faith. D.N. MacMillan

260-432A CHRISTOLOGY. A study of the doctrines of the Incarnation a

260-432A CHRISTOLOGY. A study of the doctrines of the Incarnation and Atonement; their biblical sources, their development in the history of Christian thought; modern restatements. E.G. Jay

260-461B HUMAN DEVELOPMENT AND GENDER IDENTITY. This course outlines personality development and functioning from birth onwards. Its main concern is with the major stages of the life cycle. At the same time it devotes some attention to human sexuality and to the ways in which sex roles are learned. M. Peaston

260-470B CHRISTIAN SOCIAL ETHICS. This course examines the basis of Christian social responsibility, traditional patterns of association between Church and State, and forms of Christian involvement in political and social action. Attention is focused on possible strategies for dealing with selected contemporary social issues. J.A. Boorman

260-490D ADVANCED BIBLICAL HEBREW. Rapid reading of prose selections. Class hours devoted to discussion of grammar based on readings from biblical Hebrew. R.C. Culley

260-491A HEBREW TEXTS. Translation and exegesis of selected texts. R.C. Culley

260-492B HEBREW TEXTS. Translation and exegesis of selected texts. R.C. Culley

4.4.5 OTHER RELATED COURSES

By permission of the Faculty and the instructors concerned, students may substitute other courses for any of those required if they have already taken these or similar courses for credit.

Electives may also be chosen from the Arts curriculum or other departments of the university (see 4.1.3 "Related Courses").

By permission of the Dean, students may also enrol for elective courses in other Montreal universities (but not more than 12 credits per session may be taken outside McGill).

* Not given in 1973-74

5 GRADUATE STUDIES

5.1 PROGRAM INFORMATION

The Faculty of Graduate Studies and Research directs and controls all programs leading to higher degrees and recommends candidates to the Senate for these degrees. As a Department within it, the Faculty of Religious Studies offers courses leading to the degrees of Master of Sacred Theology (S.T.M.), Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.).

5.2 FACULTY REGULATIONS

Intending students should consult the annual *Announcement of the Faculty of Graduate Studies and Research* for general information about the various programs available and about regulations that apply to all Departments within the Faculty.

5.3 ADVANCED DEGREE REQUIREMENTS

Candidates for advanced degrees should note that they are expected to give full time if possible to their research and courses (unless specially exempted or granted non-resident status).

Language Examinations are usually offered each year early in October and in mid-April. Candidates should advise the Dean's office well in advance of their intention to write.

Theses. The regulations concerning format, dates of submission, and other technical matters may be consulted in the office of the Dean of Religious Studies or in the office of Mrs. F. Mitchell, Graduate Studies, Dawson Hall.

5.4 REGULATIONS FOR THE M.A. (RELIGIOUS STUDIES)

5.4.1 PURPOSE

The purpose of this degree is to encourage advanced study and research in religion and theology, especially for those who wish to become scholars or teachers and those who are already engaged in some field of religious service.

5.4.2 ADMISSION

Candidates must possess a B.A. or equivalent degree (e.g. B.Th., M.Div.), with at least good second class standing in a major or honours program in religious studies or theology from a University or College that is accredited in North America.

5.4.3 RESIDENCE

The basic residence requirement is one year. But the degree may, by permission, be taken on a part-time basis.

5.4.4 THE PROGRAM

Candidates are required to complete satisfactorily six half-courses and write a thesis embodying the results of their research. A reading knowledge of French or another modern language is also required.

5.4.5 AREAS OF STUDY

Research may be undertaken in the following areas for which courses are offered by the department:

(1) *Comparative Study* (including Hinduism, Islam, and Judaism as well as Christianity).

(2) *Religion and Culture* (including Religion and the Arts, Theological Ethics, and Philosophy of Religion).

(3) *Christian Theology* (including Old Testament, New Testament, Church History, Historical Theology, Pastoral Psychology and Theological Ethics).

Related courses in other McGill departments are also available, e.g. in Anthropology, Art History, East Asian Studies, Islamic Studies, Music, and Sociology. Other resources exist in the several Universities of Montreal.

Candidates who have studied only one major religious tradition before entering the M.A. program must take at least two half-courses in Comparative Study or in the study of a second major faith.

5.4.6 LANGUAGE EXAMINATIONS

The modern language examination is to be taken at the end of the first term by those admitted in September, and at the end of the second term by those admitted in January. Exemption from this requirement is granted to those who have a degree pass in the language.

5.4.7 THESIS SUBMISSION

The dissertation may be submitted at the end of the second term of residence, or within four years after all residence requirements have been met.

NOTE: A thesis in Old Testament requires competence in Hebrew; similarly, one in New Testament requires competence in Greek.

5.4.8

In certain cases candidates may be advised to take a Qualifying Year before entering the M.A. program.

5.5 REGULATIONS FOR THE S.T.M.

5.5.1 PURPOSE

The S.T.M. is meant primarily for those who intend to enter the ministry of the Christian Church or another religious institution, or proceed to teaching in schools or to some form of social work.

Note: Professional training is available to S.T.M. graduates in the three affiliated Theological Colleges (Anglican, Presbyterian, and United). McGill also has a Faculty of Education and a School of Social Work.

5.5.2 ADMISSION

Candidates must possess a B.A. with at least second class standing in a major or honours program in religious studies or theology from an accredited University or College. Those who have a McGill B.Th. or an equivalent degree, with good second class standing, may be admitted to the second year of the S.T.M. program.

5.5.3 RESIDENCE

The normal requirement is *two years* (of two terms each) of full-time study. But the degree may, by permission, be taken on a part-time basis.

5.5.4 THE PROGRAM

Candidates are required to complete satisfactorily sixteen half-courses, eight in each academic year. They may, by permission, take summer session courses for credit, or take additional courses if their academic standing warrants it. A reading knowledge of French, or German, or another modern language is also required.

5.5.5 AREAS OF STUDY

Courses are offered by the department in four areas:

(1) *Biblical* (Old Testament; New Testament).
(2) *Historical* (Church History; Historical Theology).
(3) *Religion and Culture* (Theological Ethics; Philosophy of Religion; Pastoral Psychology).
(4) *Comparative Study.*

Related courses are also available in other departments.

5.5.6 SPECIAL REQUIREMENTS

Ministerial candidates are to choose their courses in consultation with the Principal of the Theological College to which they belong.

During the *first session* two half-courses are to be selected by all candidates from *three* of the areas listed in 5.5.5.

In the *second* session, two half-courses are to be taken in the *remaining area* listed. The other four half-courses are elective, and in some cases candidates may take all of them in one of the four areas. Thus a limited amount of specialization is possible.

Those who are admitted into S.T.M.2 shall elect courses in consultation with the Dean and the secretary of the graduate committee of the department. They too may be permitted to specialize in one area.

5.5.7 LANGUAGE EXAMINATION

Entrants to S.T.M.1 are expected to pass the modern language requirement by the end of their *second* term; but those who are admitted into S.T.M.2 must do so by the end of their *first* term. Exemption is granted to those who have a degree pass, or the equivalent, in the language.

NOTE: To specialize in Old Testament a candidate may be required to show competence in Hebrew; similarly, specialization in New Testament may require competence in Greek.

5.6 REGULATIONS FOR THE Ph.D. IN RELIGIOUS STUDIES

5.6.1 PURPOSE

The purpose of the Ph.D. program is to engage the student in academic studies at the highest level and to enable him if he so wishes to prepare himself for an academic career. It normally requires three years of research beyond the bachelor's degree, and two beyond the master's.

5.6.2 ADMISSION

Candidates shall normally possess an accredited M.A. in Religion or Theology, or the S.T.M., with at least *high second class standing* and recommendation for doctoral study; or the B.D. (M.Div.) with *first class* standing and a similar recommendation from a recognized Canadian, American, British or other University, or from an accredited theological college or seminary; or such other degree as the Faculty may accept as equivalent to the McGill M.A. or S.T.M.

5.6.3 RESEARCH AREAS

The Faculty is prepared to guide students in thesis research in each of the following subjects: Old Testament, New Testament, Church History, Historical Theology, Theological Ethics, Philosophy of Religion, and Comparative Religion.

5.6.4 THE PROGRAM

A Ph.D. candidate must reside normally for *two consecutive sessions* of full-time study and research. Part-time study may be permitted in some cases. One session, but in no case the last required session, may be spent at another institution with the approval of the Dean and the Faculty of Graduate Studies and Research.

5.6.5 SUPERVISION

The Graduate Committee shall appoint for every candidate who is admitted to Ph.D.1 an adviser, and for every candidate admitted to Ph.D.2 a supervising committee of three members, the chairman of which shall be the director of his research and thesis. It shall be the duty of the adviser or the director to meet with the candidate as soon as possible after his first registration to discuss his program with him and advise him concerning the regulations he is obliged to meet (e.g. courses, modern languages, ancient languages, field and general examinations). The director shall be responsible for arranging meetings of the supervising committee with the candidate as required. A thesis project must be approved by the Graduate Committee of the Faculty not later than December 1 of the Ph.D.2 year.

5.6.6 LANGUAGE REQUIREMENTS

French and German are normally required of all candidates, and formal admission into the work of Ph.D.2 will not be granted until at least one of these languages has been passed (or exemption granted). Similarly, formal admission into Ph.D.3 requires a pass in the second modern language. (It is strongly recommended that one or both of these languages be included in the bachelor's or master's work preceding doctoral study.)

If necessary, candidates may also have to pass examinations in Hebrew, Greek, Sanskrit and other ancient tongues, and consequently a *qualifying year may be advised.*

Candidates admitted to Ph.D.1 shall take six half-courses; those admitted to Ph.D.2, on the basis of a master's degree and adequate preparation, shall usually take four half-courses.

5.6.7 COMPREHENSIVE EXAMINATIONS

A candidate who wishes to undertake research in one of the subjects listed in 5.6.3 must pass a FIELD examination in it before entrance into the second year of residence.
In addition, before admission to Ph.D.2 or at the beginning of this year for those exempted from Ph.D.1, candidates must show general competence in *three subjects cognate to his own field.* (Competence here means at the level of second class standing in the McGill M.A.)

The manner in which this requirement is to be met shall be determined by the candidate's adviser or supervising committee. If the candidate's previous record warrants it, the waiving of this requirement shall be recommended by his supervising committee to the Graduate Committee of the Faculty.

5.6.8 DOCTORAL COLLOQUIUM

As one of their requirements all Ph.D.1 and Ph.D.2 students shall attend the graduate colloquium, where they can share ideas and criticisms with one another and their professors.

5.6.9 THESIS SUBMISSION

The thesis may be submitted at the end of the second term of the second session of residence. It must be submitted within five years after all residence requirements have been completed, unless special permission has been granted for an extension. A thesis which has been judged unsatisfactory by one of the examiners is normally not acceptable and precludes an oral defence. But any thesis judged to be unsatisfactory may be re-submitted once, one year after first submission, on the recommendation of the supervising committee.

The thesis is examined by External and Internal Examiners. If their reports warrant it, the candidate shall conduct an oral defense of his thesis before a committee of six appointed by the Dean of Graduate Studies on the recommendation of the department. Its chairman is the Dean or his Pro-Dean, and one member must represent a department of the University other than Religious Studies.

The final grade awarded to a successful Ph.D. candidate depends not only on the quality of the dissertation but on course work, examinations, research and teaching ability, and also the oral defence.

NOTE: Students should also refer to the General Regulations of the Faculty of Graduate Studies and Research as published in its annual calendar.

5.7 GRADUATE COURSES

Those marked * will not be offered in 1973-74. All are half courses unless otherwise noted: *A* denotes first term, *B* second term, *C* a Summer Session course, *D* a full course given in two terms. A course may not be offered if fewer than six students enrol.

5.7.1 AREA A (BIBLICAL)

*260-602A THE ISAIANIC ANTHOLOGY. S.B. Frost

*260-603B THE DANIEL APOCALYPSE. S.B. Frost

260-605B INTERPRETERS OF THE RELIGION AND FAITH OF ANCIENT ISRAEL.
A study of the religion and faith of Ancient Israel through the work of selected scholars. R.C. Culley

*260-606A FORESHADOWINGS OF THE EUCHARIST IN THE OLD TESTAMENT. W. Lawlor

*260-607A STUDIES IN THE BIBLICAL NARRATIVE TRADITIONS. R.C. Culley

260-680B HEBREW TEXTS. R.C. Culley

*260-610A RECENT INTERPRETATIONS OF MARK. J.C. Kirby

*260-612B THE PASSION NARRATIVE IN THE FOUR GOSPELS. J.C. Kirby

*260-613A NEW TESTAMENT ETHICS. G. Johnston

260-614B THE GOSPEL OF JOHN.
Recent research has made Johannine studies of special interest during the past twenty years, and this will be considered first. Seminar papers will be presented on some major themes in the Gospel (history and theology). G. Johnston

*260-615B THE HOLY SPIRIT IN THE NEW TESTAMENT G. Johnston

*260-616A LES PARABOLES DE JESUS. J.C. Kirby

260-617C THE EPISTLE TO THE EPHESIANS.
Exegesis and theology of this significant document. J.C. Kirby

*260-618B THE CHURCH IN THE NEW TESTAMENT. G. Johnston

260-681A SIN AND FORGIVENESS IN THE TEACHING OF JESUS AND PAUL. P. Garnet

5.7.2 AREA B (HISTORICAL)

*260-620B WORSHIP IN THE NEW TESTAMENT. J.C. Kirby

*260-621A ROMAN CATHOLICISM FROM 1870 TO THE PRESENT. H.K. Markell

*260-622B THE MODERN LITURGICAL MOVEMENT. J.C. Kirby

*260-623A THE ECUMENICAL MOVEMENT. H.K. Markell

260-624A THE CHURCH AND THE CITY IN THE ANGLO-AMERICAN WORLD SINCE 1850.
An attempt to answer the question: How were the churches of Britain and North America affected by the emergence of an urban-industrial society, and what has been their response? H.K. Markell

*260-625B CANADIAN CHURCH HISTORY. H.K. Markell

260-628B ANGLICANS AND NONCONFORMISTS IN NINETEENTH CENTURY ENGLAND.
A study of English society in the 19th century in terms of the shifting relationships between the Church of England and the Nonconformist bodies, Protestant and Roman Catholic. H.K. Markell

*260-630B PHILOSOPHY AND THEOLOGY. J.C. McLelland

*260-631A THE SIGNIFICANCE OF ORIGEN OF ALEXANDRIA. E.G. Jay

*260-632B THE EMERGENCE OF DOCTRINE IN THE APOSTOLIC FATHERS. E.G. Jay

*260-633A THE SCHISMS OF THE EARLY CHURCH. E.G. Jay

260-634B THE THEOLOGY OF AUGUSTINE OF HIPPO: GOD AND MAN.
The course will be based on a study of *De Trinitate and Encheiridion.* E.G. Jay

*260-635A THE THEOLOGY OF AUGUSTINE OF HIPPO: CHURCH, MINISTRY AND SACRAMENTS. E.G. Jay

*260-636B THE NATURE AND FUNCTION OF THE CHURCH. E.G. Jay

*260-637B THE THEOLOGY OF KARL BARTH. J.C. McLelland

260-638A THE THEOLOGY OF D.M. BAILLIE.
A study in depth of a theologian whose keen insight, constructive presentation and sound judgment entitle him to a place among the significant thinkers of our time. D.N. MacMillan

5.7.3 AREA C (PHILOSOPHY)

*260-641A THEOLOGY AND THE ARTS. J.C. McLelland

260-642A PHILOSOPHY OF RELIGION IN THE TWENTIETH CENTURY.
A comparison of major types of philosophy of religion on the modern scene. Introductory lectures followed by student research on selected topics. J.C. McLelland

260-643B KEY PROBLEMS IN PHILOSOPHY OF RELIGION.
The roots and significance of modern atheism. Studies in significant figures (e.g. Marx, Nietzsche) and recurrent themes (e.g. the Prometheus myth). J.C. McLelland

*260-644A THE MEANING AND BASIS OF RELIGIOUS BELIEF. J.C. McLelland and A. McKinnon

*260-645B MEANING AND INTERPRETATION. R.C. Culley, J.C. Kirby and J.C. McLelland

*260-661A HUMAN NATURE IN THEOLOGICAL AND PSYCHOLOGICAL PERSPECTIVE. M. Peaston

260-662B RELIGION AND PERSONALITY: THE FORMS OF LOVE.
As religious value, ethical ideal and personal achievement, love occupies a central place in human life. This course studies the spirit and forms of love and notes that love requires a context of freedom. The man-woman relationship is seen to provide a unique setting for the expression and growth of love. M. Peaston

260-663A THE SELF IN TRANSFORMATION: BEHAVIOUR CHANGE AND PERSONAL GROWTH.
This course examines four procedures for effecting behaviour change - client-centred therapy, behaviour therapy, transactional analysis and existential psychotherapy. Criteria for personal growth are developed and these are related both to the procedures and to religious ideas of wholeness. M. Peaston

260-670D CHRISTIAN SOCIAL ETHICS AND CONTEMPORARY THOUGHT.
In the first term, the social thought of contemporary Christian thinkers (such as Barth, Bonhoeffer, Niebuhr, Thielicke) is examined. In the second term, attention is focused on some of the pressing social issues of today with a view to developing Christian strategies for their solution. J.A. Boorman

*260-671D CONTEMPORARY VALUE SYSTEMS AND CHRISTIAN ETHICS.
J.A. Boorman

5.7.4 AREA D (COMPARATIVE STUDY)

*260-650D RELIGIONSWISSENSCHAFT: THE HISTORY OF THE DISCIPLINE.
C.J. Adams

260-656B STUDIES IN THE BHAGAVADGITA. R.W. Stevenson

397-604D THE ISLAMIC TRADITION. C.J. Adams

397-702D ISLAMIC THEOLOGY. I. Izutsu

* Not offered in 1973–1974.

5.7.5 ELECTIVE COURSES IN OTHER DEPARTMENTS

With the consent of the Dean of Religious Studies and the instructor concerned, graduate students may choose one or more of the following related courses provided they are being offered:

123-612B Medieval Art and Archeology
123-622A The Art of Byzantium
114-651D and 751D Classics – Non-literary subjects
120-610A English - Devotional Literature
101-607D History - Religious and Ideological Movements in the United Kingdom and Western Europe 1815-1914.
101-616D Philosophy of History
101-617D The Impact of Church and State Relations on French-Canadian Society
107-381D Problems of Philosophy
107-401B History of Ethics
107-463D Kierkegaard

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McGill University

SCHOOL OF NURSING

In the Faculty of Medicine

1973-1974

Wilson Hall
3506 University Street*
Montreal 112, Que.

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 3 73

McGill University

SCHOOL OF NURSING

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1 STAFF

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A.(U.B.C.) Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.), F.R.S., F.R.S.C.
Principal and Vice-Chancellor

Stanley B. Frost, B.D., M.Th.(Lond.), Dr.Phil.(Marburg), D.D.(Vic., Tor.), D.Litt.(Mem.)
Vice-Principal (Administration and Professional Faculties)

Eigil D. Pedersen, B.A.(SGWU), M.A.(McGill), Ed.D.(Harvard) — Vice-Principal (Academic)

Allan C. McColl, D.F.C., B.Com., C.A. — Director of Finance

R. F. Patrick Cronin, M.D., C.M., M.Sc., M.R.C.P.(London), F.R.C.P.(C)
Dean of the Faculty of Medicine

Joan M. Gilchrist, B.N., M.Sc.(A), R.N., — Director of the School of Nursing

John H. Holton, B.Com.(Tor.) — Secretary of the Board of Governors

Colin M. McDougall, D.S.O., B.A. — Registrar and Secretary of Senate

1.2 STAFF OF SCHOOL OF NURSING

Joan M. Gilchrist, B.N., M.Sc.(A.), R.N. — Associate Professor of Nursing, Director

F. Moyra Allen, B.N., M.A.(Chic.), Ph.D.(Stanford), R.N., — Professor of Nursing

Elizabeth Logan, B.Sc.(Acad.), N.N.(Yale), R.N.,
Flora Madeleine Shaw Professor of Nursing

Irma K. Riley, B.S., M.A.(Col.), R.N. — Associate Professor of Nursing

Mirth Doyle, B.N., M.Ed.(Col.), R.N. — Assistant Professor of Nursing

Jean Godard, B.Sc.N.(Queen's), M.Sc.(A.), R.N. — Assistant Professor of Nursing

Margaret Hooton, B.Sc.N.(Queen's), M.Sc.(A.), R.N. — Assistant Professor of Nursing

Mary D. Jerrett, B.N., M.Sc.(B.U.), R.N. — Assistant Professor of Nursing

Anne Kiss (Mrs. L.), B.A.(Clarke), M.Ed.(Minn.), R.N. — Assistant Professor of Nursing

Florence MacKenzie, B.N., M.Sc.(A), R.N. — Assistant Professor of Nursing

Kathleen Rowat, B.Sc.(N.)(Tor.), M.Sc.(N.)(U. of Cal.), R.N. — Assistant Professor of Nursing

Ethel C. Shaw, B.Sc.(N.)(Alta.), M.Sc.(Simmons), R.N. — Assistant Professor of Nursing

Sharon Carty (Mrs. D.J.), B.S. (Niagara), R.N. — Lecturer in Nursing

Patricia A. Donahoe, B.Sc.N., M.N., R.N. — Lecturer in Nursing

Mona B. Kravitz (Mrs. H.), B.N., M.Sc.(A.), R.N. — Lecturer in Nursing

Judith Pinkham, B.N., R.N. — Lecturer in Nursing

Margaret M. Ross, B.Sc.N., B.Ed.(St. Francis Xavier), R.N. — Lecturer in Nursing

Carole Tenbrink-Ho (Mrs. H.V.), B.Sc.N., M.Sc.(Psy.N.)(U. of Michigan), R.N.
Lecturer in Nursing

Lorine Besel, B.N., M.S.(B.U.), R.N.	Part-time Assistant Professor of Nursing
Kathleen Brady, B.N., M.A.(Col.), R.N.,	Part-time Lecturer in Nursing
Patricia Livingstone (Mrs. A.S.), B.Sc.N., M.N., R.N.	Part-time Lecturer in Nursing
Mary Reidy (Mrs. M.F.), B.N., M.Sc.(A.), R.N.	Part-time Lecturer in Nursing
Julie Rosenfeld (Mrs. K.), B.Sc.N., R.N.	Part-time Lecturer in Nursing
Raja G. Dirlik (Mrs.), B.A.(American U. of Beirut), B.L.S., M.L.S.	Librarian

1.2.1 OTHER OFFICERS OF INSTRUCTION IN THE SCHOOL

J. Keith Jobling, B.A.(Leeds), M.A.	Associate Professor of Education
G. Margaret Clark, B.N., R.N.	Director of Nursing, Royal Victoria Hospital
Florence Farmer, B.H.S., M.Sc., Ph.D.	Associate Professor of Food Science
C. Joy Hackwell, B.N., R.N	Director of Nursing, Montreal Neurological Hospital
Isabel MacLeod (Mrs. A.W.), B.Sc.(N),(Alta.), M.A.(Col.), L.L.D., R.N.	Director of Nursing, Montreal General Hospital
John Corbett McDonald, M.D.(Lond.), M.R.C.P.(Lond.), M.Sc.(Harv.), D.P.H.(Lond.)	Professor of Epidemiology and Health
Alison Dunston McDonald, M.D., D.P.H.(Lond.), D.C.H.(Eng.)	Associate Professor of Epidemiology and Health
Roselyn Smith, B.N., R.N.	Director of Nursing, Montreal Children's Hospital
Blossom T. Wigdor, B.A., M.A.(Tor.), Ph.D.	Associate Professor of Psychology

2 GENERAL INFORMATION

2.1 THE SCHOOL

Since its beginning in 1920, the School of Nursing has grown in its continued effort to educate nurses who will improve the quality of nursing, in whatever area they may practise. With the growing complexity of medical care, and the rapid growth of scientific knowledge, the nursing profession needs educated, thoughtful practitioners who can assess nursing problems and develop new ways of solving them.

The School has four programs:

(1) A baccalaureate program for registered nurses.

(2) A basic baccalaureate program for high school graduates.

(3) A program leading to a Master of Science (Applied) degree for nurses holding a baccalaureate degree.

(4) A program leading to a Master of Nursing (Teaching) degree.

The School is administered in the Faculty of Medicine. The School of Nursing is located in Wilson Hall, which houses classrooms, faculty offices, a professional library, and lounges. Students registered in the School also take courses in other Faculties within the University. Selected field experience in nursing is provided in the McGill Teaching Hospitals, and in a wide variety of health and social agencies in Montreal. Specific programs of study are outlined in the relevant section of the calendar.

2.2 HEALTH SERVICES

All new students must have proof of a valid smallpox vaccination and must have a health interview and chest x-ray after registration. Health Service is provided for all students during the session. (See *Students' Information Pamphlet* for details.)

2.2.1 COMPULSORY HEALTH INSURANCE FOR NON-CANADIAN STUDENTS

All full-time foreign students (including landed immigrants during their first year at McGill) must take out a Health Insurance policy, which is available on a group basis. In general, the policy provides for payments towards hospital, surgical, medical, diagnostic and other medical expenses.

2.3 FEES

The University reserves the right to make changes without notice in its published schedule of tuition, board and residence, and other fees. (See each program for amounts.)

2.3.1 REGULATIONS FOR PAYMENT OF FEES

(1) Students entering the University for the first time are required to pay their fees by mail or in person at the Accounting Office.

The first instalment is due within 10 days after registration, the second instalment before January 15, 1974.

A late payment fee of $10.00 for the first 30 days, $25.00 thereafter, is charged for payment after the specified dates.

(2) Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 23, 1973; otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all upper year students, either with their Reports of Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this award for payment of the first instalment of fees, must obtain from the Student Aid Office, McGill University, a Permit to Delay Payment of Fees.

The second instalment is due January 15, 1974. No invoices will be sent. A late payment fee of $10.00 for the first 30 days, $25.00 thereafter is charged for payment after the specified dates.

(3) Students registering late must pay their fees at the time of registration, or else become subject to the late payment fee and the provisions of the following paragraph:
As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

2.3.2 BOARD AND RESIDENCE

Through a Rooms Registry located at the University Centre, every assistance is given to those seeking accommodation. Application for rooms must be made in person from August 27 to September 27. For a bachelor unit, expect to pay between $85—$115, unfurnished. Rooms are available in university residences.

2.4 BURSARIES, SCHOLARSHIPS AND PRIZES

There are a number of bursaries and scholarships open to all students registering in the University. Information may be obtained from the Registrar's Office. Applicants must meet the University entrance requirements.

2.4.1 OPEN TO BASIC NURSING [B.Sc.(N.)] AND B.N. STUDENTS

NATIONAL SCHOLARSHIPS

OTHER ENTRANCE SCHOLARSHIPS

UNIVERSITY SCHOLARSHIPS

UNIVERSITY BURSARIES

VICTORIAN ORDER OF NURSES FOR CANADA BURSARIES

ALUMNAE ASSOCIATION OF THE SCHOOL OF NURSING SCHOLARSHIP. – Value $700.00, established in memory of Dr. Marion Lindeburgh by the Alumnae Association. Open to graduate, registered nurses who meet the entrance requirements for study at the School of Nursing. Scholarships are also available for students in B.Sc.(N.), M.Sc.(A.) and M.N. programs. Apply by June 1 to the Chairman of the Scholarship Committee, Alumnae Association, 3506 University St., Montreal 112, Quebec.

2.4.2 OPEN TO GRADUATE NURSES ONLY

ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC BURSARIES. – A limited number of bursaries are awarded each year for post-basic study in nursing. For programs leading to the Baccalaureate degree, the amount is $1,500.00 and for study leading to the Master's degree, the award is $3,000.00. Applications should be submitted by May 15 to The Association of Nurses of the Province of Quebec, 4200 Dorchester West, Montreal 215, Quebec.

ROYAL VICTORIA HOSPITAL NURSING SCHOLARSHIPS: a) The Mabel F. Hersey Scholarship for postgraduate study. b) The Emma Thomas Scholarship for postgraduate study. c) The Ida McGregor Scholarship for postgraduate study. d) The Women's Auxiliary offers bursaries for senior staff members for postgraduate study.

ALUMNAE ASSOCIATION, ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING. – Bursary of $1,000 open to all graduates of the Royal Victoria Hospital School of Nursing, accepted in an approved University program. Application before March 31 to: Alumnae Office, Nurses' Home, Royal Victoria Hospital, Quebec.

VICTORIAN ORDER OF NURSES FOR CANADA BURSARIES. – The Victorian Order of Nurses for Canada offers bursaries of $1,800 to nurses enrolling at a Canadian university in a diploma course or in the final year of a basic or post-basic degree program which includes preparation in public health nursing. Bursary recipients agree to work one year for the Victorian Order in any branch where their services are required. Inquiries to: Victorian Order of Nurses for Canada, 5 Blackburn Ave., Ottawa K1N 8A2, Ontario.

ST. JOHN AMBULANCE ASSOCIATION OF CANADA. – One or more bursaries of $1,000.00 from the Margaret MacLaren Memorial Fund may be awarded annually to experienced Registered Nurses for study at the Master's level. This fund may also be used to serve the needs of student nurse applicants with preference given to those with St. John Ambulance affiliation. Applications must reach National Headquarters not later than May 1 addressed to the Chairman of Bursary Funds, 321 Chapel Street, Ottawa K1N 7Z2, Ontario.

GOVERNMENT BURSARIES. A limited number given by the Province of Quebec to nurses who wish to remain in the province, and who have been accepted for admission to the School.

W. K. KELLOGG FOUNDATION LOAN FUND. Established through the generosity of the Foundation, to assist graduate nurses who have unexpected expenses while registered in courses at the School. Consult the Director of the School of Nursing.

LEXY L. FELLOWES MEMORIAL PRIZE. An annual prize of $100 to be awarded to a student of high academic and professional achievement, in the Bachelor of Nursing Course, on the recommendation of the School.

MONTREAL GENERAL HOSPITAL. The Montreal General Hospital has a limited number of bursaries available for nurses studying in the Baccalaureate and Master's programs. For further information apply to The Director of Nursing, Montreal General Hospital, 1650 Cedar Avenue, Montreal 109, Quebec.

2.5 REGISTRATION

All students must report to Wilson Hall for preliminary registration between the hours of 9 a.m. and 4 p.m. as follows:

2.5.1 FIRST YEAR

Students in the first year of the Bachelor of Nursing Program are required to complete a period of field work during September, beginning Wednesday, September 5 and will register in the Sir Arthur Currie Memorial Gymnasium on Monday, September 17. Preliminary enrolment for B.N.II students will be held on Tuesday, September 18, 1973.

For second year students in the CEGEP equivalent program registration will take place on Tuesday, September 18 and Wednesday, September 19, 1973.
For B.Sc.(N) preliminary enrolment will take place on Thursday, September 13.

N.B. *With the exception noted above, all students will complete their registrations in the Sir Arthur Currie Memorial Gymnasium on the days given above.*

2.6 EXAMINATIONS

Final examinations are held for first-term half courses in January, and for full courses and second-term half courses in April and May. Mid-term examinations for full courses may be held in December depending upon the instructor.

Results of examinations are recorded according to class, as follows: Class I, 80% to 100%; Class II, 65% to 79%; Class III, 50% to 64%. For students enrolled in the Master's Program the pass mark is 65% in all courses; for other students, 50%.

A student who has failed in a final examination and has been given permission by the Director of the School to write a supplemental examination must write this supplemental during the following August. Written application must be made before August 1. A fee of $10.00 for each supplemental paper is payable to the Cashier as soon as the application has been approved. A student who wishes to write a supplemental examination outside McGill must make application to the Director to do so before July 15. There is an additional fee of $10.00 for establishing such an outside centre.

3 BACHELOR OF NURSING PROGRAM

3.1 GENERAL INFORMATION

3.1.1 FIRST YEAR

This program for Graduate Nurses focuses upon the study of Nursing in actual nursing situations. Students examine the nursing process which is associated with experience in any of the following fields of practice:

a) Maternal and Child Health
b) Medical-Surgical
c) Mental Health
d) Community Health

In addition to study in the field during the year, approximately two weeks are spent in orientation in September, and there is clinical practice during the month of May.

3.1.2 FINAL YEAR

The second year is built upon the first and continues in the nursing courses with the study of nursing as it relates to:

a) Teaching of Nursing
b) Supervision of Nursing Services

Students in this final year are required to complete a month of field experience during May. This experience is related to the particular course, as well as the needs of individual students.

3.1.3 PART-TIME STUDY

By special arrangement a one-year program may be extended over two years for students who are unable to attend full time.

3.1.4 ENTRANCE REQUIREMENTS

All applicants must have completed the basic nursing program in an approved school of nursing, be registered in the province or country from which they come, and have satisfactory professional qualifications.

In addition, candidates must have five University subjects: English, Chemistry or Biology with laboratory, and any three of the following: History, Geography, Science, Modern Language, Economics and Mathematics, with an average of at least 65%.

3.1.5 TRANSFER OF CREDITS

Consideration will be given to transfer of credits for work completed in another university if an official transcript of the student's work is sent directly to the School by the officers of the institution in which the work was completed.

3.1.6 APPLICATION FOR ADMISSION

All applications must be made on forms which may be obtained from the Admissions Office or from the School of Nursing, McGill University. Photocopies of official transcripts from the School of Nursing may be submitted. All documents, including an official transcript of the student's academic preparation, are to be forwarded to the Admissions Office.

3.1.7 EXPENSES

Approximate cost for one year:

Tuition fees $608.00
Books & incidentals $125.00
Board & room . . . . . $1,500.00 to $2,000.00

Field work will involve additional expense for travel and living which the student must consider in estimating expenses.

3.1.8 UNIFORMS

All students in the Graduate Nurse Programs are advised that uniforms are required for field experience in hospitals. Students in community nursing are required to provide themselves with an appropriate public health uniform including brown or black walking shoes with low heels for field experience starting in September. Laboratory coats are sometimes worn.

3.2 COURSE OF STUDY

3.2.1 FIRST YEAR

CORE COURSES

Sociology E21A or E22A or E23A and one of E42B, E44B or E45B.
Psychology 204-200D
Nursing 570-310A. Principles of Learning
Nursing 570-311B. Community Organization
Nursing 570-312D. Human Growth and Development
Nursing 570-313A. Epidemiology and Health
Nursing 570-370B. Unit Management
Nursing 570-360D. Clinical Nursing (570-320D, 330D, 340D, 350D)

ELECTIVES

One elective from the Faculty of Arts:
English, History, Economics, Modern Language.

3.2.2 FINAL YEAR

CORE COURSES

Nursing 570-410D. Introduction to Study Method (Statistics)
Education 413-404A or 405A or 406B or 408B
Sociology (selected course)
Political Science 160-211D or 231D or 244A and 245B
Economics 154-236D (Industrial Relations)

ELECTIVES

Elective from the Faculties of Arts or Science as well as one of the following:
Nursing 570-460D. Teaching of Nursing
OR
Nursing 570-470D. Supervision of Nursing in Hospitals
OR
Nursing 570-450D. Supervision of Public Health Nursing

3.3 DESCRIPTION OF COURSES

3.3.1 NURSING – GENERAL

570-311B Community Organization. A study of the changing patterns of community life and the influences on the development of health services. (Two hours, one term.) Professors Logan and Doyle

570-410D Introduction to Study Method. The use of research method in the study of nursing problems. (One hour and laboratory, two terms.) Mrs. Reidy

3.3.2 EDUCATION

570-460D Teaching of Nursing. A consideration of the relation between the process of learning nursing and the selection of teaching strategies and the development of a structure for learning. (Two hours,two terms; clinical experience in May is required.) Professor Doyle

3.3.3 NURSING – ADMINISTRATION

570-370B Unit Management. Management principles are applied to the organization of patient care. (Two hours, second term.) Professor Kiss

570-450D Supervision of Public Health Nursing. The supervisory process is studied as it relates to problem-solving in public health nursing. The educative, developmental and administrative aspects of the supervisory role are included. Principles of epidemiology are applied to the study of a community problem. (Two hours, two terms; clinical experience in May is required.) Miss Brady

570-470D Supervision of Nursing in Hospitals. The supervisory process is studied as it relates to problem-solving in nursing in hospitals. The educative, developmental and administrative aspects of the supervisory role are included. Role playing and interviewing techniques are emphazied. (Two hours, two terms; clinical experience in May is required.) Professor Besel

3.3.4 NURSING – CLINICAL

570-360D The practice of nursing is often divided into "fields" according to age group (Paediatric), particular kind of disability (Psychiatric), particular organizational structure (Public Health), etc. Nursing in all of these fields consists of promotion of health through care and teaching, and involves the assessment of individual needs. It is based upon an understanding of individuals within a social setting and of the factors which influence health.

The aim of the course is to identify and study major concepts from the biological and social sciences which will provide a basis for the identification and solution of nursing problems.

The first part of the course deals with the major concepts related to nursing, while the second part is directed to the study of selected health problems with emphasis on the nursing aspects. Nursing assessment skills include history-taking and physical examination to enable the nurse to detect physical abnormalities and to assume responsibility for aspects of health care.

Field experience forms an integral part of this course, providing an opportunity for the student to apply knowledge and develop her nursing skills through examination of the nursing process. It is adjusted to meet individual needs of the students and can be provided in hospitals, health agencies and various areas of the community. Professors Godard, Kiss, Shaw and Mrs. Tenbrink-Ho

Following completion of the baccalaureate program, internships of 2-4 months are planned for selected students to prepare for nursing practice in primary health care or nurse specialists in clinical fields.

3.3.5 NURSING – COGNATE COURSES

570-310A **Principles of Learning.** An introduction to theories of learning and a study of skills that facilitate learning. (Two hours, first term.) Professor Doyle

570-312D **Human Growth and Development.** An introduction to traditional problem areas in psychology viewed from a developmental perspective: learning, perception, motivation, personality, attitude, language and symbolic activity, socialization, and some aspects of abnormal behaviour. The purpose of the course is to develop an appreciation of general principles of behaviour by a developmental approach. (Two hours, two terms.) Professor B. T. Wigdor

570-313A **Epidemiology and Health.** The principles of epidemiology, social medicine, and human nutrition. (Two hours, first term.) T.B.A.

3.3.6 COURSES GIVEN IN OTHER FACULTIES

Students have an opportunity to select courses from those offered in the Faculties of Arts, Science and Education as outlined in the various programs.

4 BACHELOR OF SCIENCE IN NURSING PROGRAM

4.1 GENERAL INFORMATION

4.1.1 HEALTH REQUIREMENTS

In addition to requirements (Section 2.2), students are required to have inoculations for tetanus, poliomyelitis, typhoid, paratyphoid, tuberculosis, and diptheria sensitivity.

4.1.2 RESIDENCE FACILITIES

Students wishing to live in residence apply when application to the University is submitted. Royal Victoria College is the women's residence. There are also men's and co-educational residences. Students must budget for residence in May and June.

4.1.3 EXPENSES

Bachelor of Science in Nursing fees $615.00
Residence . . . . . approx. $914.00 – $985.00 plus summer.

4.1.4 UNIFORM

Students are required to supply themselves with the School uniform obtained through the School. A plain dark coat is required for community nursing.

4.2 PROGRAM

The prerequisite is two pre-university years in the Biological (Health) Sciences in a General and Vocational College (CEGEP) or the equivalent in any university. Students are urged to select their options from introductory and advanced courses in Psychology and Sociology.

The curriculum extends over three years with general and professional courses in each year. There is a nursing course in May and June of the first two years. Experience will be concentrated in the community health centres, and experience in hospitals and other agencies will be closely linked to the home and community.

A two to four month internship is available for selected applicants.

Graduates of the diploma program in nursing in the General and Vocational College (CEGEP) can enter this program after they have obtained the prerequisite courses in the biological (health) sciences.

4.2.1 COURSE OF STUDY

4.2.1.1 First Year

Physiology 552-201A and 202B or Biology 177-201D
Psychology 204-304D
Microbiology 528-201B
Sociology 166-247A
Nursing 572-200D
572-201C

4.2.1.2 Second Year

Physiology 552-211D (if biology taken in first year) OR
Biology core (if physiology taken in first year) OR Alternative course
Sociology (selected)
Nursing 572-300D, 572-301C

4.2.1.3 Third Year

Social Psychology 204-330A, 204-331B
Selected Course from Arts or Science
Nursing 572-400A, 572-401B

4.2.2 DESCRIPTION OF COURSES

572-200D The study of health and illness in individuals of varying ages with emphasis on the beginning development of sensitivity to patient needs through listening and observation and on the use of interpersonal skills; a study of the body's general reaction to disease and the principles underlying diagnosis and treatment. The student will thus learn to provide care for patients with mild and acute illness in the home, clinic or hospital. (2 hours class; 8 hours experience weekly – 2 terms.)

570-201C A concentrated period within the hospital will provide an opportunity for the student to acquire skill in a core of nursing techniques particularly related to the patient who is undergoing surgery. (May and June – 10 hours class and 20 hours experience weekly.)

572-300D The study of how individuals respond to chronic illness and how they can be helped to adjust to their life situation, including the study of the effects of family and environmental factors, and of the individual who breaks down. (2 hours class; 16 hours experience weekly – 2 terms.)

572-301C This part of the course concentrates on an understanding of pregnancy and delivery and the impact of a new member in the family. The student learns about the manifestation of illness in children at different ages; the implication of separation; and how to cope with rapid change in condition. (May and June – 10 hours class and 20 hours experience weekly.)

572-400A An intensive study of family health problems and the use of community resources, and participation in the health team. Emphasis is placed upon further development of nursing including interpersonal skills; interviewing; assessing health needs; and selected medical techniques. (3 hours class and 20 hours experience weekly – 2 terms.)

572-401B A course in which the student learns to use the principles of management in planning for groups of patients as seen in the context of today's health care issues. The nursing profession is viewed in its historical perspective and as a force in today's society. (3 hours class and 20 hours experience weekly – 2 terms.)

Experience is obtained in the McGill teaching hospitals and selected community agencies under the direction and guidance of the staff of the School of Nursing. Nutrition and pharmacology are integrated within the course.

Following completion of the baccalaureate program, internships of 2-4 months are planned for selected students to prepare for nursing practice in primary health care or nurse specialists in clinical fields.

5 MASTER OF SCIENCE (APPLIED) PROGRAM

5.1 GENERAL INFORMATION

This program aims to prepare the specialist in nursing – one who is equipped to promote the development of nursing. The program extends over two academic years with field work. During the first year, the student studies nursing and, in addition, takes courses in related fields and in research. In the second year the student investigates a nursing problem arising from her exploration in the field and further considers the development of nursing through study of either the administrative or the teaching process. During the two years a variety of clinical fields may be used.

5.1.1 REQUIREMENTS FOR MASTER OF SCIENCE (APPLIED) DEGREE

Applicants must have completed a program comparable to that required by McGill for a baccalaureate degree in nursing and have a superior record of academic and professional achievement and development (a high II class or G.P.A. 3.0). The undergraduate program should include introductory courses in psychology and sociology, and some background in the humanities. All students are expected to have current registration in the province or country from which they come. Candidates may maintain their connection with the University for five years after completing their course and residence requirements. The object of this regulation is to encourage candidates to complete their program and qualify for their degree without delay [see Faculty of Graduate Studies and Research Regulation 3.6(e)].

5.1.2 APPLICATION FOR ADMISSION

Application forms and other information may be secured from the Director, School of Nursing. Classes are admitted in September.

5.1.3 EXPENSES

1st year $652
2nd year $312
Total $964

Other costs
Room and board . . . . . $1,500–$2,000 per year
Books . . . . . $100–$150 per year
Other expenses including typing . . . . . $100 per year

5.2 COURSE OF STUDY

5.2.1 FIRST YEAR CORE COURSES

Nursing G573-611D. Seminar in Nursing

Anthropology 151-358B. Introduction to Research

Psychology 204-204A. Introduction to Psychological Statistics
OR
Sociology 166-350A. Elementary Statistics in Sociology and Anthropology

Two elective courses selected from Sociology, Anthropology, Philosophy, Psychology, Economics, Political Science, Education.

5.2.2 SECOND YEAR CORE COURSES

Nursing G573-712D. Nursing Research
AND EITHER
Nursing G573-771D. Development and Management of Nursing Services
OR
Nursing G573-762D. Learning to Nurse

One Elective Course

5.3 DESCRIPTION OF COURSES IN THE GRADUATE PROGRAM

573-611D **Seminar in Nursing.** An intensive study of the practice of nursing through seminars and experience in the clinical field. (4 hours seminar with field experience concurrently and throughout the month of May.)

573-712D **Nursing Research.** Systematic investigation of a nursing problem. Study of nursing research, areas of investigation and management of research problems. (4 hours seminar with concurrent field experience.)

573-771D **Development and Management of Nursing Services.** The assessment, development and management of nursing personnel and health care services. The implications of research in nursing, in learning, and in organizational behaviour will be considered. (3 hours seminar with concurrent field experience.)

573-762D **Learning to Nurse.** Learning to assume the expanding function of nursing within our modern health services and the implications for method in teaching, evaluation and curriculum planning. The relation of research in learning and in education to the preparation of the nurse. (3 hours seminar with concurrent field experience.)

6 MASTER OF NURSING (TEACHING) PROGRAM

6.1 GENERAL INFORMATION

The course aims to prepare Teachers of Nursing for the new educational programs across Canada. The program of one calendar year is based on the belief that beginning specialists in Nursing can within this time study how students learn to nurse and relate teaching methods to the conditions required for learning. Courses in learning and in education from other disciplines are included to assist students in exploring and participating in the teaching of nursing throughout the academic year and in the internship period.

6.1.1 ENTRANCE REQUIREMENTS

Applicants must have completed a *three* or *four* year Basic Nursing Program comparable to the Bachelor of Science (Nursing) offered at McGill and have a superior record of academic and professional achievement and development. All students are expected to have current registration in nursing in the province or country from which they come.

6.1.2 APPLICATION FOR ADMISSION

Application forms and other information may be secured from the Director, School of Nursing. Classes are admitted in September.

6.1.3 EXPENSES

Academic year $652
Summer session $120
Other costs
Room and board . . . . . $1,500—$2,000 per year
Books . . . . . $100—$150 per year
Other expenses, including typing . . . . . $100 yer year

6.2 COURSE OF STUDY

CORE COURSES

574-661D. Teaching of Nursing

574-662B. Curriculum Development

Education 414-614C. Sociology of Education.

Two full courses and one half-course selected in consultation with the Department.

For example:
Psychology 204-401D. Cognitive Processes
OR
Psychology 204-452D. Cognitive Development
Sociology 166-439B. Socialization
OR
Anthropology 151-314A. Psychological Anthropology

AND ONE of the following:

Philosophy 107-321A. Philosophy of Science
Psychology 204-204A. Psychological Statistics
AND
Psychology 204-206B. Psychological Measurement
Education 413-641D. Education in Developing Nations
Education 413-657D. Leading Educational Thinkers

6.3 DESCRIPTION OF COURSES

G574-661D Teaching of Nursing. A study of how students learn to nurse and of the situations within which learning takes place. Participation in teaching and examination and evaluation of teaching practices. Description and analysis of a learning-teaching phenomenon experienced by the student. (6 hours. Concurrent fieldwork in addition; 2 months internship, May and June.)

G574-662B Curriculum Development. Consideration of factors involved in planning a course in nursing such as the function of nursing and types of nurse, the derivation and development of nursing knowledge, planning and use of clinical experience, sequence, evaluation, school-agency relations. (1½ hours.)

For the description of other courses see the *Announcements* of the Faculties of Arts and of Science and of the Faculty of Graduate Studies and Research.

McGill University

GRADUATE SCHOOL OF LIBRARY SCIENCE

Under the Administrative Jurisdiction
of the Faculty of Graduate Studies
and Research

1973-74

3459 McTavish Street*
Montreal 112, Que., Canada
Telephone (514) 392-5947

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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 11 73

CALENDAR FOR SESSION 1973-1974

	1973
September 7, Friday	First year students report to the School
September 10, Monday	Lectures begin for first year students
September 12, Wednesday	Lectures begin for second year students
December 10, Monday to December 14, Friday	Examinations
December 14, Friday	First term ends
	1974
January 7, Monday	Second term begins
April 12, Friday to April 15, Monday	Easter Vacation
April 22, Monday to April 26, Friday	Examinations

1 STAFF*

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A.(U.B.C.), Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.) F.R.S., F.R.S.C.
Principal and Vice-Chancellor

Eigil Pederson, B.A.(SGWU), M.A.(McGill), Ed.D. (Harv.) — Vice-Principal (Academic)

Stanley B. Frost, B.D., M.Th.(Lond.), Dr. Phil.(Marburg), D.D.(Vic., Tor.), D.Litt.(Mem.)
Vice-Principal (Administration and Professional Faculties)

Allan C. McColl, D.F.C., B.Com., C.A. — Director of Finance

Walter F. Hitschfeld, B.A.Sc.(Tor.), Ph.D.
Dean, Faculty of Graduate Studies and Research

John H. Holton, B.Com. (Tor.) — Secretary of the Board of Governors

Colin M. McDougall, D.S.O., B.A. — Registrar

1.2 LIBRARY SCHOOL STAFF

Effie C. Astbury, B.A., B.L.S., M.L.S.(Tor.) — Director and Professor of Library Science

Rodolphe Lavergne, B.A.(Montréal), B.L.S., M.L.S. — Associate Director and Associate Professor

Violet L. Coughlin, B.Sc., B.L.S., M.A.(Col.), D.L.S.(Col.) — Professor of Library Science

J. David Batty, B.A.(Durham), F.L.A. — Professor of Library Science

Mary Hall, B.A.(Marianopolis), B.L.S., M.L.S. — Associate Professor

Enid Clement, B.A.(SGWU), B.L.S., M.L.S. — Assistant Professor

Mary Elizabeth Dolan, B.A. (U.N.B.), M.L.S. — Assistant Professor

Peter F. McNally, B.A.(Western Ontario), B.L.S., M.L.S. — Assistant Professor

Vernon Ross, B.S. in L.S.(Col.), M.A. — Emeritus Professor

Stephanie Both, B.A.(SGWU), B.L.S.(Tor.), M.L.S. — Librarian

1.3 SPECIAL LECTURERS

John Andreassen, Ph.B.(Wis.), M.A.(Louisiana) — Archivist

David Bourke, M.Arch., M.R.A.I.C., A.R.C.A. — Executive Assistant to Principal

William Hillgartner, B.S., M.Ed. (Penn State), Ph.D.(Syracuse)
Director, Instructional Communications Centre

Elizabeth Lewis, B.A., B.L.S. — Rare Books Librarian

GRADUATE SCHOOL OF LIBRARY SCIENCE

Walter Grossman, M.S.(Simmons), Ph.D.(Harvard)
Director of the Library, University of Massachusetts, Boston, Mass.

Miriam Tees, B.A., B.L.S.
Librarian, Royal Bank of Canada

**Degrees received from McGill University carry no institutional designation.*

1.4 OCCASIONAL LECTURERS

IRENE AUBREY, Children's Librarian, Westmount Public Library; NORAH BRYANT, Chief Librarian, Westmount Public Library; H. C. CAMPBELL, Chief Librarian, Toronto Public Library; MARY E. CULLEN, Librarian, United Aircraft of Canada Ltd.; MARGARET EDWARDS, formerly Co-ordinator, Work with Young People, Enoch Pratt Free Library, Baltimore; RICHARD A. FARLEY, Director of Libraries, McGill University; ROLAND GRANDMAITRE, Public Archives and Records Centre, Montreal; JOHN HARE, Canadian Bibliographer, Professor at University of Ottawa; JOHN HOBBINS, Reference Librarian, McGill University; JERRY S. KIDD, Professor, School of Library and Information Services, University of Maryland; CATHERINE KOLLAR, Government Documents Librarian, McGill University; IRIS LAND, Librarian, Air Canada, Montreal; MATT P. LOWMAN, Assistant to the Director, The Newberry Library, Chicago; KEVIN McGARRY, College of Librarianship, Wales; BERNARD McNAMEE, Executive Director, Canadian Library Association; JOHN MAPPIN, Book Collector, Montreal; ROBERT REID, Typographer, Montreal; ELIZABETH SILVESTER, Head Reference Librarian, McGill University; GEORGE SNOWBALL, Assistant to the University Librarian, Sir George Williams University; GUY SYLVESTRE, National Librarian, Ottawa.

2 GENERAL INFORMATION

McGill University was the first institution in Canada to provide library training and the first to grant a degree in library science. Short summer programs were given from 1904-1927, the first regular sessional program being given in 1927-28. The program of the School was accredited by the Board of Education for Librarianship of the American Library Association, and the B.L.S. (5th year) degree was first conferred in May 1931. In the session of 1956-57, a 6th year Master of Library Science degree was first offered. After 1964-65 the 5th year degree was discontinued and the M.L.S. degree awarded only after two years of graduate study. In 1968 the School's M.L.S. program was accredited by the Committee on Accreditation of the American Library Association.

The School's program aims to prepare its graduates to play a dynamic part in the operation of libraries of today, to be responsive to change, flexible, and perceptive of the need to adjust to new modes in the future. It recognizes a responsibility, in cooperation with professional associations, to share in the continuing education of practising librarians. Though the School does not offer a degree at the doctoral level, it endeavours to make a contribution to the advancement of knowledge, especially in the field of information retrieval.

The School is situated in a large city in which are to be found all types of libraries and is part of a university with a tradition of sound scholarship.

It is located on the street floor of the recently-completed McLennan Library and has an excellent collection in the field of library science and laboratory collections for cataloguing, reference, and children's literature. The students also have access to the stacks of the University library.

.1 DEGREES

he M.L.S. degree is awarded after successful completion of two academic years of ost-graduate study.

.2 REQUIREMENTS FOR ADMISSION

) Applicants for admission must have a B.A. or B.Sc. degree from an approved university. The School will take into account the character of the applicant's undergraduate udies and his suitability for library work. Courses in the *humanities*, *sciences*, and *social udies* are preferred as forming a suitable basis for studies in library science. Academic anding of at least B (or second class) is required.

) A knowledge of at least one language other than English is expected.

) Application forms may be obtained from the School and, when completed, should be turned to the School. Official transcripts of the applicant's university record must also be pplied. Deadline for receipt of application forms is May 31st. *As enrolment is limited*, arly application is advisable.

) Students are advised to learn to use a typewriter before entering, since a large part of the ork done must be in typewritten form.

) Applicants without library experience are strongly advised to work in a library before nrolling in the program.

.3 EMPLOYMENT

placement service is situated on the campus.

.4 HEALTH REQUIREMENTS

4.1 HEALTH REQUIREMENTS FOR NEW STUDENTS

ll students after having been accepted by the University will receive a medical questionnaire mplete with a self-addressed envelope addressed to the Health Service. The student is quested to complete this questionnaire and to return it in the envelope at the earliest ssible date.

An appointment will be made for all new students to be seen by a physician at the niversity Health Service as early as possible during their first academic year. At this terview the health of the student will be reviewed and if it is thought necessary, the udent will be medically examined. The examination may include X-ray and other propriate laboratory or diagnostic tests. Re-examination may also be required in the terest of the student or of others attending the University.

4.2 COMPULSORY HEALTH INSURANCE FOR NON-CANADIAN STUDENTS

ll full-time foreign students (including landed immigrants during their first year at McGill) ust take out a health insurance policy, which is available on a group basis. In general, the olicy provides for payment towards hospital, surgical, medical, diagnostic, and other edical expenses.

Full details and application forms will be sent to all foreign students when they e notified that there is a place for them at the University.

2.5 REGISTRATION

Students entering the first year of the M.L.S. program should present themselves at the Graduate School of Library Science, 3459 McTavish Street on September 7, 1973. All others may register between September 4 and September 11.

2.6 EXAMINATIONS AND ADVANCEMENT

Final marks are based on the term's work and/or on examinations. The pass mark is 65%.

Students who do not fulfil requirements satisfactorily may be asked to withdraw from the school.

2.7 FEES AND EXPENSES

2.7.1 FEES

Fees are due and payable 10 days after formal registration in the Faculty of Graduate Studies and Research. A late fee of $10 is charged for payment after the specified dates, and no days of grace are allowed.

First year	$652
Second year	$312
Transfer students entering in second year	$652
Additional year	$162

Fees may be paid in two instalments; second instalment payable January 15, 1974.

2.7.2 TEXTBOOKS AND MATERIALS

Students should allow at least $100 for textbooks and supplies. These are available from the University Book Store and the School.

2.7.3 LIBRARY VISITS

Visits to libraries, under the direction of members of the Faculty, are a required part of the the course.

2.7.4 BOARD AND RESIDENCE

Information regarding accommodation may be found in the *General Announcement* available from the Registrar's office, P.O. Box 6070, Montreal 101.

2.8 TRANSFER OF CREDIT

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement.*

A student who has obtained a B.L.S. (Canadian) or a M.L.S. (American) with satisfactory standing from another accredited library school will be considered for admission into the second year.

A student who has completed the first year with satisfactory standing at another accredited Canadian library school with a two-year program (four half-year terms) may be permitted to transfer into second year. The applicant must have academic and other qualifications acceptable for entrance into McGill's M.L.S. program and have taken the core courses required in the first year M.L.S. at McGill. Under no circumstances will the residence requirements for the M.L.S. degree be reduced below one academic year.

3 FINANCIAL AID AND AWARDS

3.1 SCHOLARSHIPS

These awards are made after due investigation and recommendation to deserving students who require financial assistance. Application should be made to the Director of the School before March 31.

3.1.1 DR. G.R. LOMER SCHOLARSHIPS
Two annually of $640 each in honour of Dr. G. R. Lomer, former Director of the School.

3.1.2 ELIZABETH G. HALL SCHOLARSHIP FUNDS
$300 from the fund founded in honour of a former member of the McGill University Library staff.

3.1.3 ETHELWYN M. CROSSLEY SCHOLARSHIP FUND
$100 from the fund founded in honour of a former student of the School. Women students are given preference.

3.1.4 SYRA DEENA TARSHIS FLEISHMAN BURSARY
$200 from the fund founded in memory of a former student of the School.

Additional information concerning financial aid is detailed in the publication, *Postgraduate Awards, Fellowships and Bursaries* available from the Registrar's Office, P.O. Box 6070, Montreal 101. The Canadian Library Association, 151 Sparks Street, Ottawa K1P 5E3, also compiles an annual list of *Scholarships, Bursaries and Loans in the Field of Library Science.*

3.2 AWARDS

3.2.1 VIRGINIA MURRAY PRIZE FOR CATALOGUING
Awarded to the student in M.L.S. I who obtains the highest grade in the Organization of Materials course.

4 COURSES OF INSTRUCTION

4.1 FIRST YEAR COURSES (Total Credit Hours – 27)

4.1.1 REQUIRED COURSES

405-602A INTRODUCTION TO LIBRARIANSHIP. (Not given in 1973-74)

405-603A SELECTION AND USE OF BOOKS AND RELATED MATERIALS. 3 hours. **Professor Hall**

405-604B SELECTION AND USE OF BOOKS AND RELATED MATERIALS. 3 hours. **Professor Hall**

405-605A REFERENCE MATERIALS AND METHODS. 3 hours. **Professor McNally**

405-606B REFERENCE MATERIALS AND METHODS. 3 hours. **Professor McNally**

405-607A ORGANIZATION OF MATERIALS. 3 hours. Professor Clement

405-608B ORGANIZATION OF MATERIALS. 3 hours. Professor Clement

405-609A ADMINISTRATION OF LIBRARY OPERATIONS. 3 hours. Professor Lavergne

405-610B INTRODUCTION TO DATA PROCESSING. 2 hours. Professor Batty

405-611A RESEARCH METHODS. I hour. Professor Hall

COLLOQUIUM Visiting Lecturers

NOTE: A refers to first term, B to second.

4.1.2 ELECTIVE COURSES

One of the courses marked * below is to be elected by M'L.S. I students.

4.2 SECOND YEAR COURSES (Total credit hours – 24)

4.2.1 REQUIRED COURSES (3 hours)

405-620A THEORY AND PRINCIPLES OF ADMINISTRATION. 3 hours. Professor Lavergne

405-622D RESEARCH PAPER. Professor Hall

405-611A RESEARCH METHODS. (Required for students entering at the second year level.) Professor Hall

4.2.2 ELECTIVE COURSES (21 hours)

Seven courses must be taken. Each course 3 credit hours. Not all courses are available in any one year.

Seven courses must be taken. Each course 3 credit hours. Not all courses are available in any one year.

*405-612B HISTORY OF BOOKS AND PRINTING. Professor McNally

*405-613B AUDIO-VISUAL MATERIALS. Professors Dolan and Hillgartner

*405-614B PUBLIC LIBRARY ORGANIZATION AND DEVELOPMENT. Professor Coughlin

405-630B LIBRARY COLLECTIONS: ASSESSMENT AND DEVELOPMENT. Professor Hall and Walter Grossman

405-631A SYSTEMS ANALYSIS Professor Batty

405-632B LIBRARY APPLICATIONS OF DATA PROCESSING I. *(405-610B prerequisite)* Professor Batty

405-633B LIBRARY APPLICATIONS OF DATA PROCESSING II. (Information Retrieval). Professor Batty

405-634A PROBLEMS AND DEVELOPMENTS IN CATALOGUING AND CLASSIFICATION. Professor Batty

405-635B ADVANCED BIBLIOGRAPHY AND REFERENCE METHODS. *(405-651A prerequisite)* Not given in 1973-74)

405-636A GOVERNMENT PUBLICATIONS Professor Dolan

405-637B SCIENTIFIC AND TECHNICAL LITERATURER. Professor Dolan

405-638B BUSINESS LITERATURE. Miriam Tees

405-639A SPECIAL LIBRARIES. Miriam Tees

*405-640B COLLEGE AND UNIVERSITY LIBRARIES. Professor Lavergne

405-641B SEMINAR IN PUBLIC LIBRARY PROBLEMS. *(405-614B prerequisite).* Professor Coughlin

405-642A LIBRARY MATERIALS FOR CHILDREN. Professor Dolan

*405-643B LIBRARY MATERIALS AND SERVICE FOR YOUNG ADULTS. Professor Coughlin

405-644B RARE BOOKS Elizabeth Lewis and Visiting Lecturers

405-645A ARCHIVES AND RECORDS IN LIBRARIES. John Andreassen

405-646A A RESEARCH PROJECT. *(405-611A prerequisite)* Faculty

405-647A INDEPENDENT STUDY. *(405-611A prerequisite)* Faculty

405-648A CRITICAL ANALYSIS OF LIBRARY STUDIES. Professor Hall

405-649B LIBRARY PLANNING AND ARCHITECTURE Professor Lavergne and David Bourke

*405-650B SERVICE TO CHILDREN IN SCHOOL AND PUBLIC LIBRARIES. Professor Dolan

405-651A REFERENCE SERVICE IN THE HUMANITIES AND SOCIAL SCIENCES. Professor McNally

405-652A COMMUNICATION MEDIA AND THE LIBRARY. Professor Batty and Visiting Lecturers

4.2.2.1 COURSES IN ANOTHER SCHOOL OR FACULTY

A maximum of 12 hours (i.e. four half courses) may be taken with permission provided students have the necessary prerequisites. The following are among the courses suggested:

OPERATIONS RESEARCH
MATHEMATICAL LOGIC
INTRODUCTION TO DEDUCTIVE LOGIC
PUBLIC ADMINISTRATION
GOVERNMENT OF CANADA
HISTORIOGRAPHY OF THE CANADAS
INTRODUCTION TO HISTORICAL GEOGRAPHY
SOCIAL PSYCHOLOGY
MODERN PSYCHOLOGY IN HISTORICAL PERSPECTIVE
INDUSTRIAL AND COUNSELLING PSYCHOLOGY
SOCIOLOGY OF THE PROFESSIONS
URBAN SOCIOLOGY
MASS COMMUNICATIONS
INTRODUCTION TO STATISTICS
METHODOLOGY AND PHILOSOPHY OF SCIENCE
HISTORY OF EDUCATIONAL THOUGHT
RUSSIAN LANGUAGE
LITERATURE AND SCIENCE
LITERATURE AND SOCIETY
THE FILM
STUDIES IN COMMUNICATIONS
20TH CENTURY CANADIAN LITERATURE

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Preparatory School of Music

Courses in all practical and theoretical subjects at the preparatory level

1973-1974

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McGill University

FACULTY OF MUSIC

PREPARATORY SCHOOL OF MUSIC

555 Sherbrooke St. W., Montreal 111, Que.

ADMINISTRATIVE OFFICERS

DIRECTOR:	PROF. HELMUT BLUME, *Dean of the Faculty of Music*
VICE-DIRECTOR:	PROF. DONALD MACKEY, *Secretary (Academic) of the Faculty of Music*
SECRETARY:	MISS DOROTHY FEINBERG Telephone: 392-4550
BOOKKEEPER:	MISS FLORENCE SAMMETT Telephone: 392-4501
COORDINATOR OF LOCAL CENTRES:	PROF. ROSE GOLDBLATT Telephone: 392-4558
RECITAL ORGANIZER:	MISS LUBA ZUK

TEACHING STAFF

DEPARTMENT OF THEORETICAL MUSIC

Acting Chairman: PROF. BRUCE MINORGAN

MR. PATRICK BLAKE
MR. CHRISTOPHER LEWIS
MR. PIERRE PERRON
MISS PENELOPE PETERS
MR. PETER SLEMON

DEPARTMENT OF PERFORMANCE

Chairman: PROF. RICHARD LAWTON

Piano:

PROF. ROSE GOLDBLATT
PROF. KENNETH MEEK
PROF. DOROTHY MORTON
PROF. CHARLES REINER
MISS MARY BLAIKIE
MISS ELIZABETH DAWSON
MRS. CYNTHIA DOWSE
MRS. PIERRETTE MATHER
MISS PENELOPE PETERS
MRS. DAGMAR RYDLO
MISS DAPHNE SANDERCOCK
MR. KARL STEINER
MISS LUBA ZUK

Organ:

PROF. DONALD MACKEY *(University Organist)*
PROF. KENNETH MEEK
MR. RAYMOND DAVELUY
MR. JOHN GREW

Harpsichord:	Mr. John Grew
Voice:	Prof. Luciano Della Pergola *(Director, Opera Workshop)* Mrs. Betty Doroschuk Mrs. Carmen Mehta Mrs. Edith Della Pergola Mr. Jan Simons Miss Ann Golden Mr. Winston Purdy

STRINGS

Violin:	Prof. Stephen Kondaks Prof. Otto Armin Mrs. Sonja Jelinkova Mrs. Mildred Goodman
Viola:	Prof. Stephen Kondaks
Cello:	Prof. Edward Culbreath Mr. Michael Carpenter
Double Bass:	Mr. Tom Lederer
Harp:	*To be announced*
Guitar:	Mr. Stephen Fentok Mr. Timothy Hewlings

WOODWINDS

Flute:	Mr. Patrick Blake Miss Ellen Cash
Recorder:	Mr. Jean-Pierre Pinson
Oboe:	Mr. Don Hyder
Clarinet:	Mr. Abe Kestenberg Mr. Emilio Iacurto
Saxophone:	Mr. Gerald Danovitch Prof. Donald Hughes
Bassoon:	Mr. Sidney Rosenberg

BRASS

Trumpet:	Mrs. Barbara Maxedon Mr. James Ranti Mr. John Taber
French Horn:	Mr. William Karstens
Trombone:	Prof. Richard Lawton Mr. Ted Griffith
Tuba:	Mr. Ted Griffith

PERCUSSION — Mr. Pierre Beluse

FACULTY CHOIR — Prof. Wayne Riddell

FACULTY ORCHESTRA	PROF. EUGENE PLAWUTSKY
FACULTY BAND	PROF. DONALD HUGHES
CHAMBER MUSIC	
(Strings, Woodwinds, Brass and Keyboard Instruments):	PROF. EDWARD CULBREATH
	PROF. STEPHEN KONDAKS
	PROF. RICHARD LAWTON
	PROF. DOROTHY MORTON
	PROF. CHARLES REINER
	PROF. DONALD HUGHES

GENERAL STATEMENT

The McGill Preparatory School of Music is operated by the McGill Faculty of Music. It offers an integrated programme of studies in practical and theoretical subjects at preparatory levels in order to:

a) enable students of both pre-college and college age to acquire the necessary standards in practical subjects, theory and ear-training, for admission to the degree and diploma programmes of the Faculty of Music;

b) provide elementary and intermediate training in all instruments and voice to regular students in the Faculty of Music.

GRADE CERTIFICATES

Every spring, examinations are held at all preparatory levels in practical and theoretical subjects, and all successful candidates are awarded the Grade Certificates of the McGill Preparatory School of Music at their respective grade levels.

N.B. Secondary School students who wish to take Music as a High School Leaving subject, please note that completion of the Secondary Practical Level PLUS the Secondary Level Theory & Ear Training of the McGill Preparatory School of Music, is recognized as a credit by the Ministry of Education.

In Montreal, the preparatory courses are given, and Grade examinations held. at 555 Sherbrooke St. W.

LOCAL CENTRES

For non-McGill music students at the preparatory level, the Faculty of Music, through its Preparatory School, acts as an Examination Board, both in Montreal and in various Local Centres in the Province of Quebec where students prepared by private local teachers can sit the Grade examinations before visiting McGill Examiners in all *practical* subjects, as set by the Faculty of Music (McGill Local Centre Examinations). Examinations in *theoretical* subjects are conducted at each centre under the supervision of a local representative of the McGill Faculty of Music and the papers will be sent to the Faculty for marking. *For a list of McGill Local Centres, please refer to p. 48.*

NON-CREDIT COURSES

Students of the McGill Preparatory School of Music may, with special permission of the Department Chairman, participate at no extra cost in certain Ensemble activities of the Faculty (Orchestra, Symphonic Band, Choir).

CATEGORY OF STUDENTS

All students in the McGill Preparatory School of Music are registered as Partial Students in the Faculty of Music.

ADMISSION TO THE McGILL PREPARATORY SCHOOL OF MUSIC

All inquiries should be directed to the Vice-Director, Prof. Donald Mackey, or the Secretary, Miss Dorothy Feinberg, McGill Preparatory School of Music, 555 Sherbrooke St. W., Montreal, telephone 392-4550.

ADMISSION REQUIREMENTS

All applicants will be interviewed and will have to pass an audition or talent test.

N.B. For admission requirements to degree and diploma programmes in the Faculty of Music, please consult the *Announcement of the Faculty of Music.*

REGISTRATION

Students in Theory and Ear-Training register for the full session (thirty weeks — September to April). Date of registration: September 10 to September 17, 1973.

Students in all *practical* subjects may register for either the full session (thirty weeks — September to April) or for one term of fifteen weeks (September to January, or January to April).

EXAMINATIONS

Sessional Examinations: Final sessional examinations in *theoretical* subjects are held in late April and early May. Examinations in all *practical* subjects take place during May. Entry forms must be obtained from the Secretary of the McGill Preparatory School of Music and returned, duly filled in, on or before March 1.

N.B. For Payment of Examination Fees, please see p. 9.

N.B. Practical examinations contain no ear tests. Theoretical examinations consist of two parts: a written theory test, and, at another time, an ear-training test. Specimen papers are obtainable for a small fee from the office of The Preparatory School of Music.

Deferred Examinations: These are held in early fall and are permitted only if the regular spring examinations were missed as a result of illness or other special circumstances. A written request for the deferment of examination must be submitted to the Director on or before August 15.

Supplemental Examinations: Students who have failed to obtain the passing result of 55% in any examination have the choice of: a) passing a supplemental examination in that subject in early fall; b) repeating the course. A written request for a supplemental examination must be submitted to the Director on or before August 15.

Local Centre Examinations: The examinations in *theoretical* subjects are held at the Local Centres on the date of the regular sessional examinations of the McGill Preparatory School of Music. Examinations in *practical* subjects take place during May and June. The regulations concerning *deferred* and *supplementary* examinations outlined above apply also to Local Centre candidates in *theoretical* subjects. However, it should be noted that deferred and supplemental examinations in *practical* subjects are held only in Montreal, as McGill examiners visit the Local Centres only once a year, in the spring. — Entry forms for all Local Centre examinations must be obtained from the Secretary of the McGill Preparatory School of Music in Montreal, or from the local Honorary Secretaries, and must be returned, duly filled in, to the Secretary of the McGill Preparatory School of Music on or before March 1.

CLASSIFICATION OF MARKS

The following classification of marks brings the marking system for the Preparatory School into conformity with the marking system of the Faculty of Music and the rest of the University.

A — 80%-100%
B — 65%- 79%
C — 55%- 64%
D — 45%- 54%
F — Fail

The D class mark implies a pass in the examination attempted but does not allow the candidate to continue to the next highest grade. Therefore in the interest of maintaining a good passing standard in both Theoretical and Practical subjects certificates will be awarded only to those candidates who have achieved a C category mark, or higher.

It is recommended that students strive for the same excellence which was expected of them in previous years and consider that 55% is a minimum pass mark in both Practical and Theoretical subjects.

DISTRIBUTION OF MARKS IN THEORETICAL EXAMINATIONS

Elem. I, Sec. I, Sec. II: Written Theory — 50%; plus Ear Training — 50%. Coll. I: Theory & Analysis — 100%. Ear Training — 100%. (Two marks.)

DISTRIBUTION OF MARKS IN PRACTICAL EXAMINATIONS

Technique (Skill in scales, arpeggios, study):	25%
Prepared Pieces (Interpretation, form, style, musicality):	60%
Sight-Reading	10%
General Impression	5%

N.B. Performance from memory should be encouraged and will be recognized in the total examination mark awarded. It is, however, not compulsory.

FEES

N.B. The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require.

TUITION FEES

Theory and Ear-Training	Full Session (30 weeks)
Elementary I (1½ hours a week)	$ 60.00
Secondary I (1½ hours a week)	$ 60.00
Secondary II (2 hours a week)	$ 80.00
Collegial I (4 hours a week)	$120.00

N.B. There will be no refund of tuition fees for classes missed in Theory and Ear-Training. The above fees include the examination fee.

PRACTICAL (ALL INSTRUMENTS AND VOICE)

		One Term	Full Session	
		15 1-hr. lessons	30 ½-hr. lessons	30 1-hr. lessons
All Levels	Minimum:	150.00	150.00	300.00

N.B. Depending on choice of instrument and instructor, fees applying in the Faculty of Music may be charged to students in the McGill Preparatory School of Music, i.e.:

All Levels	Minimum:	175.00	175.00	350.00

N.B. The above fees include the examination fee.

REGISTRATION FEE

A non-refundable registration fee of $5.00 is included in the published fees for tuition of students in the Preparatory School of Music.

REGISTRATION IN PRACTICAL SUBJECTS

Students may register for individual instruction in *practical* subjects in the following manner only:

One term comprising fifteen 1-hour lessons

or for: Two terms comprising thirty ½-hour lessons
or for: Two terms comprising thirty 1-hour lessons

There will be no refund of tuition fees to those students who fail to attend the total number of lessons for which they have signed up, except in cases of illness if a doctor's certificate is produced stating that the student concerned is unable to continue attending lessons for the remainder of the term or the session.

EXAMINATION FEES

Examination fees in all Local Centres are as follows:

Theory and Ear-Training:

Elementary I	$10.00
Secondary I	10.00
Secondary II	10.00

N.B. Collegial I Theory, Analysis, Ear Training, is not examined in the Local Centres.

All Practical Subjects:

Elementary I	$ 6.00
Elementary II	6.00
Elementary III	9.00
Secondary I	9.00
Secondary II	12.00
Secondary III	12.00
Collegial I	15.00
Collegial II	15.00
Collegial III	25.00

N.B. There will be no refund of examination fees to those students who fail to attend the examination at the time scheduled for them, except in cases of illness if a doctor's certificate is produced stating that the student concerned was unable to attend the examination. In making refunds, only one half of the fee can be refunded, or the full fee will be credited to the following year.

PAYMENT OF FEES

Tuition Fees are due at registration. Remittance may be made by cheque or money order payable to *McGill University* and addressed to the Secretary, Preparatory School of Music, McGill University, 555 Sherbrooke St. W., Montreal. Tuition fees for *practical* instruction covering the entire session of thirty weeks may be paid in two instalments of equal halves, the first at registration, the second not later than December 15. Late payment fee is $5.00.

Examination Fees, together with the application form duly filled in, must reach the Secretary of the McGill Preparatory School of Music, 555 Sherbrooke Street West, Montreal, on or before March 1. Remittance by cheque or money order should be made payable to *McGill University*.

ATTENDANCE REGULATIONS

1. All students are required to be punctual at all lessons and classes.
2. All students must sign the attendance card presented by the teacher upon completion of each individual lesson in a practical subject.
3. Individual lessons missed in consequence of the instructor's absence will be made up at the mutual convenience of instructor and student. Individual lessons missed as a result of the student's absence will be made up only if notice of cancellation has been given forty-eight hours in advance, or if a doctor's certificate is produced.

TABLE OF GRADE LEVELS IN INSTRUMENTAL & THEORETICAL SUBJECTS

Subject	Elementary Level	Old Grades	Secondary Level	Old Grades	Collegial Level	Old Grades
Piano	I II III	4 5 6	I II III	7 8 9	I II III	10 11 100
Organ	completion of Piano Secondary Level	Piano 9	I II	8 9	I II III	10 11 100
Harpsichord	completion of Piano Elementary Level	Piano 4 " 5 " 6	completion of Piano Secondary Level	Piano 7 " 8 " 9	I II III	10 11 100
Violin	I II	5 6	I II III	7 8 9	I II III	10 11 100
Viola	completion of Violin Elementary Level	Violin 5 " 6	I II III	7 8 9	I II III	10 11 100
Cello	I	7	I II	8 9	I II III	10 11 100
Double Bass	I	8	I	9	I II III	10 11 100
Harp	I	8	I	9	I II III	10 11 100
Guitar	I II	6 7	I II	8 9	I II III	10 11 100
Flute (and Recorder)	I	7	I II	8 9	I II III	10 11 100
Clarinet	I	7	I II	8 9	I II III	10 11 100
Saxophone	I	7	I II	8 9	I II III	10 11 100

Subject	Elementary Level	Old Grades	Secondary Level	Old Grades	Collegial Level	Old Grades
Oboe	I	8	I	9	I II III	10 11 100
Bassoon	I	8	I	9	I II III	10 11 100
Trumpet	I	8	I	9	I II III	10 11 100
French Horn	I	8	I	9	I II III	10 11 100
Trombone	I	8	I	9	I II III	10 11 100
Tuba	I	8	I	9	I II III	10 11 100
Percussion	I	8	I	9	I II III	10 11 100
Voice	I	8	I	9	I II III	10 11 100
Theory & Ear Training	I	7	I II	8 9	I	12

N.B. Preparatory Grade examinations in practical subjects are incomplete without the corresponding grade in Theory and Ear-Training. Students are therefore obliged to plan their course of instruction and examinations as follows:

Subject								
Practical Subjects:	Elem. I	Elem. II	Elem. III	Sec. I	Sec. II	Sec. III	Coll. I	Coll. II
Theory/Ear Training:	—	—	—	Elem. I	Sec. I	Sec. II	(Sec. II)	(Sec. II)

Students with previous training in practical and/or theoretical subjects will be granted equivalent credit.

McGILL GRADE EQUIVALENTS

Subject	System	Grade Equivalents							
Piano	McGill	Elem. I	Elem. II	Elem. III	Sec. I	Sec. II	Sec. III	Coll. I	Coll. II
	Tor.	2	3	4	5	6	8	9	10
	W.B.	2	3	4	5	6	8	9	10
	A.B.	1	2	3	4	5	6	7	8
	M.A.	2	3	4	5	6	8	9	10
Violin	McGill	Elem. I	Elem. II	Sec. I	Sec. II	Sec. III	Coll. I	Coll. II	
	Tor.	2	4	6	7	8	9	10	
	W.B.	2	4	6	7	8	9	10	
	A.B.	2	3	4	5	6	7	8	
	M.A.	2	3	4	5	6	7	8	
Voice	McGill	Elem. I	Sec. I	Coll. I	Coll. II				
	Tor.	4	6	9	10				
	W.B.	3	5	7	10				
	M.A.	3	4	5	6				
Clarinet	McGill	Elem. I	Sec. I	Sec. II	Coll. I	Coll. I			
	Tor.	4	6	8		10			
	A.B.	3	4	5	6	8			
	M.A.	3	4	5	6	8			
Theory	McGill	Elem. I	Sec. I	Sec. II					
	Tor.	I		II					
	W.B.	2	3	4					
	A.B.	2	4	6					
	M.A.	2	4	6					

The above chart attempts to give approximate grade equivalents of several other Preparatory Music Grade Systems, as compared with those of McGill, in some of the most frequently chosen subjects:

Tor. — Royal Conservatory of Music of Toronto.
W.B. — Western Examination Board (Univ. of Manitoba).
A.B. — Associated Board of the Royal Schools of Music, London, England
M.A. — Mount Allison University — Conservatory of Music.

COURSE DESCRIPTIONS
AND GRADE CERTIFICATE REQUIREMENTS

1. Theory and Ear-Training

N.B. A passing mark is required in both Theory and Ear-Training of each grade level (See 'Classification of Marks,' p. 7.)

THEORY ELEMENTARY I

Staff notation, including enharmonic equivalents. Major scales with not more than four accidentals, notated either with key signatures or with accidentals. Functional names of scale degrees. Perfect, major and minor intervals. Simple metres. Italian terms.
¾ hour a week.
Ear-Training Elementary I.

THEORY SECONDARY I

Major and minor scales with not more than five accidentals. All intervals. Simple and compound metres and the notation of rhythmic patterns associated with them. Additional Italian terms. Major and minor triads.
¾ hour a week.
Ear-Training Secondary I.

THEORY SECONDARY II

Completion of the study of basic musical notation. All major and minor scales all intervals and their inversions. All triads and dominant sevenths, their inversions, and their component intervals. Introduction to simple cadences. Additional Italian terms.
1 hour a week.
Ear-Training Secondary II.

N.B. A more detailed course description of each grade level in Theory (revised, June, 1973) is available from the Secretary of the Preparatory School.

THEORY — ANALYSIS — EAR-TRAINING COLLEGIAL I

A special course, for qualified and advanced students, which is the equivalent of the Collegial 211-121D — Theory and Analysis together with 212-131D — Ear-Training.
4 hours a week.

EAR-TRAINING ELEMENTARY I

Elementary sight-reading and rhythmic reading in major keys up to one sharp and one flat in the treble clef. Elementary melodic and rhythmic dictation. Recognition of perfect, major, and minor intervals.
¾ hour a week.
Theory Elementary I

EAR-TRAINING SECONDARY I

Sight-singing in major and minor keys with not more than three accidentals in treble clef. Rhythmic reading in simple and compound metres. Melodic and rhythmic dictation. Recognition of all intervals as well as major and minor triads.
¾ hour a week.
Theory Secondary I.

EAR-TRAINING SECONDARY II

Sight-singing in major and minor keys with not more than four accidentals in treble and bass clefs. Rhythmic reading. Melodic, rhythmic and elementary

chordal dictation. Aural recognition of all perfect, major and minor intervals, as well as of major and minor triads and their inversions.
1 hour a week.
Theory Secondary II.

N.B. A more detailed course description of each grade level in Ear-Training (revised, June, 1973) is available from the Secretary of the Preparatory School.

2. Practical Subjects

Please note the following regulations:

1. All candidates are required to bring a written list of their programme to the examination.
2. Selections offered by a candidate in one examination may not be repeated in a subsequent grade's examination.
3. Substitutions of studies and pieces at the equivalent grade level are acceptable for examination purposes. Such changes should be submitted to Prof. Rose Goldblatt, Chairman of the Keyboard Committee, for approval before March 15. Special forms are available for this purpose from the Secretary of the McGill Preparatory School of Music; please enclose a stamped self-addressed envelope for reply.

PIANO

The mention of certain editions is solely for identification and guidance.

A list of suggested teaching albums in early grades is available on request from Prof. Rose Goldblatt, Chairman of the Keyboard Committee.

PIANO ELEMENTARY I

Scales: C, G, F major; A, E, D harmonic minor, hands separately through one octave.

Arpeggios: Tonic triads in the above six keys, hands separately through one octave, up and down.

Prepared Pieces: Candidates must have prepared any four pieces from the following list:

The Child's Czerny — compiled by Hugh Arnold (Presser):

Sleepy Kitty
Cat and Mouse
Echoes
Piccolo Player

Kabalevsky — Little Pieces For Children Op. 39

Marionettes
Waltz
Fairy Tale
Galop

Sister Gabriellina — Je veux jouer du piano! (Ed. Archambault)

Teasing
Balalaika
Cradle Song
Ping Pong

PIANO ELEMENTARY II

Scales: C, G, D, F major, A, E, B, D harmonic minor, hands separately through two octaves. Suggested minimum speed: two notes to MM 84.

Arpeggios: Tonic triads in root position only, in C, G, D, F major, and in A, E, B, D minor, hands separately through two octaves.

Study: "Technic is Fun", Bk. I, ed. Hirschberg (Musicord). Any one. Pozzoli, 24 Little Studies, any one (Ricordi).

Prepared Pieces: Candidates must have prepared one piece from each of the following three groups:

I.	Bach	Minuet in G
	Bach	Chorale in F
	Purcell	Air in D minor
	Purcell	Minuet in A minor
	Rameau	Minuet in C
II.	Beethoven	Bagatelle in A minor
	Beethoven	Ecossaise in G
	Haydn	Dance in G
	Mozart	Rondino in C
III.	Bartók	For Children, Vol. 1, No. 1 or 7 (BH)
	Kabalevsky	Pieces for Children, Op. 39 Clowns Novelette Slow Waltz
	Octavio Pinto	Children's Festival: Prelude or Minuet
	Schumann	Album For The Young, Op. 68, one of Nos. 2, 3, 5, 14.
	Shostakovitch	Waltz or March (CCPM)
	Soulima Stravinsky	Piano Music for Children, Book I (Peters), one of Nos. 1, 4, 7

Sight-Reading: Test of not greater difficulty than pieces of previous grade, hands separately.

PIANO ELEMENTARY III

Scales (Scales beginning on white keys). C, D, E, F, G, A, B majors; and C, D, E, F, G, A, B harmonic minors. Hands separately and together through two octaves, beginning from the lowest note, piano or forte. Suggested minimum speed: 2 notes to MM 96.

Arpeggios: Tonic triads in root position only, in the above keys. Hands separately and together through two octaves, starting from the lowest note.

Study: "Technic is Fun", Bk. II, ed. Hirschberg (Musicord). Any one. "The New Czerny", Bk. II, any one (Fox).

Prepared Pieces: Candidates must prepare one piece from each of the following three groups:

I.	Bach	March in D
	Bach	Minuet in D Minor
	Bach	Minuet in G Minor
	Bach	Polonaise in G minor
	Couperin	Aria in C
	Purcell	Minuet in G
II.	Beethoven	Sonatina in G, either movement
	Clementi	Sonatina Op. 36, No. 1, any one movement
	Haydn	Little Dance in F
	Hunten	Melody in C
	Mozart	Allegro in B flat
	Mozart	Minuet in C
	Mozart	Polonaise in F
	Pleyel	Minuet & Trio in C
III.	Bartók	"For Children", Vol. 1, No. 11 or 15
	George Fiala	Prelude (Berandol)
	Otto Joachim	"Gossip" or "Plastic Soldier" from 12 Tone Pieces (Berandol)
	Kabalevsky	Children's Pieces, Op. 27 Little Song Moonlight on the River
	Schumann	Happy Farmer or First Loss (Album for The Young)
	Soulima Stravinsky	Piano Music for Children, Book I (Peters), one of Nos. 8, 12, 16
	Tchaikowsky	Album for the Young: No. 16

Sight-Reading: Test of not greater difficulty than pieces of Elem. I (both hands).

PIANO SECONDARY I

Scales: A, E, B, F sharp, B flat, E flat, A flat, D flat majors; C, D, E, F, G, A, B harmonic and melodic minors; chromatic scale beginning on C sharp. These scales through two octaves, hands together, beginning from the lowest note, forte or piano. Suggested minimum speed: 4 notes to MM 72.

Arpeggios: Tonic triads in all the above major and minor keys in root position only, hands together through two octaves.

Study: "Technic is Fun", Bk. III, ed. Hirschberg (Musicord). Any one.
Bartok, Mikrokosmos, Vol. III, any two.

Prepared Pieces: Candidates must prepare one piece from each of the following three groups:

I.	Bach	12 Short Preludes (Peters): No. 1, No. 2, or No. 3
	Handel	Courante in F
	Scarlatti	Larghetto in D minor
II.	Beethoven	Sonatina in F, either movement
	Clementi	Sonatina, Op. 36, No. 2, 1st or 3rd movement
	Clementi	Sonatina, Op. 36, No. 3, 3rd mvt.
	Diabelli	Rondino in C
	Kuhlau	Sonatina, Op. 55, No. 1, either movement
III.	Bartók	For Children, Vol. I (BH): one of Nos. 8, 12, 23
	Bartók	For Children, Vol. II (BH): one of Nos. 18, 21, 31
	Bloch	Enfantines (Fischer): The Dream or Melody
	Claude Champagne	Petit Scherzo (G. V. Thompson)
	Jean Papineau-Couture	Aria (Berandol)
	Otto Joachim	"Snowy Morning" AND "Full Moon", from 12 Tone Pieces (Berandol)
	Kabalevsky	Children's Pieces, Op. 27 Toccatina Joking Ballad
	Khatchaturian	Adventures of Ivan (Leeds), any one
	Schumann	Waltz in A minor
	Shostakovitch	Mechanical Doll
	Prokofieff	Music for Children, Op. 65, No. 3
	Tchaikowsky	Album for the Young, No. 9, No. 10, or No. 22

Sight-Reading: Test of not greater difficulty than pieces of Elem. II.

Theory and Ear-Training: Elementary I.

PIANO SECONDARY II

Scales: B, F sharp, C sharp, F, B flat, E flat, A flat, majors; also harmonic and melodic minors and chromatic scales, beginning from the same notes, hands together through four octaves in similar motion only, beginning on the lowest note, legato and staccato, piano and forte. Suggested minimum speed: four notes to MM 92, legato, and MM 69, staccato.

Arpeggios: The Tonic triads of the above keys, with inversions, through four octaves, beginning on the lowest note. These may be required to start in root position or in either inversion.

Study (One only):

Bertini-Germer	50 Selected Studies, any one of Nos 7, 12, 15, 17, or 22
Czerny	School of Velocity, Op. 299, Book I, No. 1, No. 2, or No. 4.
Czerny	School of Finger Dexterity, Op 636. Any one of Nos. 5, 6, 10 or 17.

Prepared Pieces: Candidates must prepare one piece from each of the following four groups:

I.	Bach	Two-part Inventions, No. 1 or No. 4
	Bach	12 Short Preludes. No. 5 or No. 8 (Peters)
	Bach	6 Short Preludes. Any one of Nos 3, 5 or 6 (Peters)
	Handel	Suite No. 14, Allemande or Air
	Handel	Suite No. 16, Allemande
	Scarlatti	Sonata in C, Longo 357 Sonata in Bb, Longo 36 from The Graded Scarlatti, ed. Motchane (Columbe)
II.	Beethoven	Variations on a Swiss Song
	Beethoven	Sonata, Op. 49, No. 2, either movement
	Clementi	Sonatina in C, Op. 36, No. 3, first movement
	Clementi	Sonatina in F, Op. 36, No. 4, first or third movement
	Clementi	Sonatina in G, Op. 36, No. 5, first or third movement
	Kuhlau	Sonatina in C, Op. 20, No. 1, first or third movement
	Kuhlau	Sonatina in C, Op. 55, No. 3, either movement
	Mozart	Viennese Sonatina No. 1 in C, first or last movement
III.	Chopin	Mazurkas, Op. 7, No. 2; Op. 67, No. 2; Op. 68, No. 3 (any one)
	Grieg	Arietta, Op. 12, No. 1
	Schubert	German Dances, Op. 33, Nos. 5 and 7 (both)
	Schubert	Moment Musical, Op. 94, No. 3 or 6
	Schumann	Album For The Young, Op. 68, No. 9, with No. 36; No. 21 with No. 23
IV.	Bartók	For Children, Vol. I, any one of Nos. 8, 12, 20, 21, 27 (BH)
	Bartók	For Children, Vol. II, any one of Nos. 5, 8, 18, 26 (BH)
	Kabalevsky	Variations, Op. 51, No. 4

	Kenneth Meek	Turf Tune (Gordon V. Thompson)
	Flor Peeters	10 Bagatelles, Op. 88 (Peters), one of Nos. 4, 7, 8
	Prokofieff	Children's Suite, Op. 65, any one of Nos. 2, 4, 10, 11 (Leeds)
	Ravel	Prelude
	Rhené Jaque	Rustic Dance (from Canadian Festival Album, Vol. 1 (Berandol)
	Julius Schloss	23 Pieces for Children in Twelve Tone Style (Peer International: No. 10, AND No. 21

Sight-Reading: Test of not greater difficulty than pieces of Elem. III.

Theory and Ear-Training: Secondary I.

PIANO SECONDARY III.

Scales: At the interval of the octave: all major, harmonic and melodic minor, and chromatic scales, beginning with the lowest note, through four octaves. At the Third: all major scales, through four octaves beginning with the lowest note. Contrary motion: all major scales beginning from the unison through two octaves. Forte and piano, legato and staccato. Suggested minimum speed: four notes to MM 108, legato; and four notes to MM 84, staccato.
N.B. No minor scales in contrary motion are required.

Arpeggios: All major and minor Tonic triads in root position or inversion, beginning with the lowest note. Also Dominant Seventh chords in root position and from the lowest note only. Forte and piano, legato and staccato, through four octaves. Suggested speed: four notes to MM 92, legato; and four notes to MM 72, staccato.

Study (One only):		
	Bertini-Germer	50 Selected Studies, one of Nos. 39, 43, 48, 49
	Cramer-Buelow	50 Selected Studies, No. 1 or No. 19
	Czerny	School of Velocity, Op. 299, one of Nos. 5, 6, 7 or 8
	Czerny	School of Finger Dexterity, Op. 636, one of Nos. 1, 2, 7, 14 or 21

Prepared Pieces: Candidates must prepare one piece from each of the following four groups:

I.	Bach	Two-part Inventions, one of Nos. 6, 11, 13 or 14
	Handel	Suite No. 7, Allegro or Andante
	Scarlatti	Sonata in C, Longo 218
		Sonata in B minor, Longo 263
		Sonata in F minor, Longo 173
		Sonata in E, Longo 430
		from The Graded Scarlatti, ed. Motchane (Columbe)
II.	Beethoven	Sonatina in E flat, first movement
	Beethoven	Variations in G on an original theme
	Beethoven	Sonata, Op. 49, No. 1, either movement

	Clementi	Sonatina, Op. 36, No. 6, first movement
	Mozart	Sonata in G, K 283, second movement Viennese Sonatina, No. 6 in C, first two or last two movements
III.	Chopin	Mazurka, one of Op. 6, No. 1; Op. 17, No. 2; Op. 30, No. 2; Op. 67, No. 4
	Chopin	Prelude No. 15
	Chopin	Waltz, Op. 70, No. 2, or Op. 34, No. 2
	Grieg	Lyric Pieces, Op. 43, No. 1 or No. 4
	Liszt	Consolation, No. 2
	Schubert	Waltzes, Op. 9a (Nos. 1, 2, 3: all three)
	Schumann	Album For The Young, Op. 68, No. 13, No. 29 or No. 39
	Schumann	Scenes From Childhood, Nos. 4 and 5
IV.	Bartók	For Children, Vol. I, No. 40, or all three of 34, 35, 36 (BH)
	Debussy	Children's Corner, one of Nos. 2, 5, 6
	Duchow	Chant Intime
	Maurice Dela	Chanson from "La Vieille Capitale" (Berandol)
	Menotti	Poemetti, 12 Pieces, any one
	J. Turina	The Circus, any one

Sight-Reading: Test of not greater difficulty than pieces of Sec. I.

Theory and Ear-Training: Secondary II.

PIANO COLLEGIAL I

Scales: At the interval of the Octave, Third, and Tenth: All scales, including chromatics, beginning with the lowest note, through four octaves.
At the Sixth: All majors beginning with the lowest notes, through four octaves.
Contrary Motion — All majors and harmonic minors beginning from the unison, through two octaves.
Broken Octaves — All majors, hands separately, through two octaves, beginning with the lowest note.
The above scales should be played forte and piano, legato and staccato. Suggested minimum speed for all, except broken octaves: four notes to MM 120, legato; and four notes to MM 84, staccato. Broken Octaves: suggested speed, four notes to MM 88.

Arpeggios: Major and minor Tonic triads, Dominant Seventh and Diminished Seventh chords, in root position or inversion, beginning with the lowest note. Forte and piano, legato and staccato, through four octaves.

Study (One only):

Cramer-Buelow	50 Selected Studies, No. 10 or No. 12
Czerny	School of Velocity, Op. 299, No. 11 or No. 13

Prepared Pieces: Candidates must prepare one piece from each of the following four groups:

I.	Bach	French Suite No. 4 in E flat: Sarabande & Gigue
	Bach	French Suite No. 5 in G: Allemande & Sarabande
	Bach	Three-part Inventions, any one
	Handel	Suite No. 16 in G minor: Allemande & Sarabande, *or:* Sarabande & Gigue.
	Telemann	Fantasie No. 7 or No. 8 (Peters)
II.	Beethoven	Sonatina No. 2 in F minor, any two movements
	Beethoven	Sonatina No. 3 in D, 1st movement
	Beethoven	Variations on "Nel cor piu"
	Haydn	Sonata in E minor, No. 2, 1st movement (Peters)
	Haydn	Sonata in D, No. 7, 1st movement (Peters)
	Mozart	Sonata in G, K 283, 1st movement
	Mozart	Rondo in D
III.	Brahms	Waltzes, Op. 39. Nos. 2 and 3 or Nos. 9 and 11.
	Chopin	Mazurka, Op. 17, No. 1; Op. 33, No. 1; or Op. 63, No. 2. Any one.
	Chopin	Waltz, Op. 69, No. 2 or Op. 64, No. 3
	Chopin	Nocturne, Op. 55, No. 1 or Op. 37, No. 1
	Mendelssohn	Songs Without Words, any one of: Op. 19, No. 1; Op. 38, No. 2; Op. 62, No. 1; Op. 67, No. 1
	Schubert	Impromptu in A flat, Op. 142, No. 2
	Schumann	Romance in F sharp.
IV.	Bartók	Three Rondos on Folk Tunes: any one
	Debussy	Arabesque No. 1 or No. 2
	George Fiala	Sonatina (Berandol)
	Kabalevsky	Variations, Op. 40, No. 1
	Pinto	Memories of Childhood. No. 1 and No. 5
	Poulenc	Valse

Group IV continued on next page.

	W. K. Rogers	Six Short Preludes, Nos. 1 and 3, or Nos. 4 and 5 (BMI)
	Scriabin	Etude, Op. 20, No. 1
	Scriabin	Prelude, Op. 11, No. 14

Sight-Reading: Test of not greater difficulty than pieces of Sec. II.

Theory and Ear-Training: Secondary II.

PIANO COLLEGIAL II

Scales: At the interval of the Octave, Third, Sixth, and Tenth: All scales, including chromatics, beginning with the lowest note, through four octaves. Contrary motion: All scales, except melodic minors, from the unison only, through two octaves. Broken Octaves: All majors and melodic minors, hands separately and together, through two octaves, beginning with the lowest note only.

Arpeggios: Tonic triads, Dominant and Diminished Seventh chords in root position or inversion, as requested by the examiner, at the interval of an octave, starting on the lowest note.

Note: Scales and arpeggios should be played at as fast a speed as is consistent with clarity and accuracy, using legato and staccato touch, and without group accentuation, through four octaves.

Studies *(Any two):*

	Cramer-Buelow	Fifty Selected Studies (any except those listed for Grades 9 and 10)
	Czerny	School of Velocity, Vols. III and IV

Prepared Pieces: Candidates must prepare one selection from each of the following four groups:

I.	Bach	French Suite No. 3 in B minor: Sarabande and Gigue
	Bach	Well-Tempered Clavier, Bk. I: Prelude and Fugue No. 5 in D; *or* No. 21 in B flat
	Bach	Well-Tempered Clavier, Bk. II: Prelude and Fugue No. 7 in E flat; or No. 12 in F minor
	Handel	Suite in G minor: Passacaglia
	Handel	Suite No. 10 in D minor: Air and Gigue
	Handel	Suite No. 14 in G: Allemande and Allegro
	Scarlatti	Sonata chosen at the discretion of the teacher
	Telemann	Fantasie No. 12 in B minor
II.	Beethoven	Sonata, Op. 2, No. 1: either first or last movement
	Beethoven	Rondo, in C, Op. 51, No. 1
	Beethoven	Bagatelles, Op. 33, Nos. 1 and 4; or Op. 126, Nos. 1 and 2
	Haydn	Sonata No. 10 in G, 1st movement (Peters)

	Haydn	Sonata No. 15 in D, 1st movement (Peters)
	Mozart	Sonata in C, K 330. 1st movement movement
	Mozart	Sonata in E flat, K 282, 1st movement
III.	Brahms	Intermezzi, Op. 76, No. 4 or No. 6
	Brahms	Ballade, Op. 10, No. 1
	Brahms	Romance, Op. 118, No. 5
	Chopin	Mazurka, Op. 17, No. 4, or Op. 41, No. 4
	Chopin	Nocturne Op. 32, No. 1; or Op. 72, No. 1
	Chopin	Waltz, Op. 70, No. 1; or E minor (Posthumous)
	Mendelssohn	Songs Without Words: Any one of: Op. 19, No. 5; Op. 38, No. 6; Op. 53, No. 3; Op. 67, No. 4
	Mendelssohn	Scherzo in E minor
	Schubert	Impromptu, Op. 90, No. 4
	Schubert	Moment Musical, Op. 94, No. 2
	Schumann	Arabesque, Op. 18
IV.	Albeniz	Sevillanas
	Debussy	Children's Corner: Any one of Nos. 1, 3, or 4
	Debussy	Mazurka in F sharp minor
	Duchow	Passacaglia
	Hector Gratton	Fairy Tale (Berandol)
	Jean Papineau-Couture	Deux Valses (14 Piano Pieces by Canadian Composers) (Frederick Harris)
	Prokofieff	Visions Fugitives, Op. 22 (any two)
	Prokofieff	Prelude, Op. 12, No. 7
	Tcherepnine	Bagatelles, Op. 5 (any two)
	Villa-Lobos	Polichinelle

Sight-Reading: Test of not greater difficulty than pieces of Sec. III.

Theory and Ear-Training: Secondary II.

PIANO COLLEGIAL III

This examination is offered externally only to those students who may expect to enter the Piano Performance Channel of the McGill University Faculty of Music. The requirements are the performance of a previously approved program, comprising representative works from the Baroque, Classical, Romantic, and Modern periods. The program, with timings, should be submitted to Prof. Rose Goldblatt, Chairman of the Keyboard Committee, before March 15.

The complete program should be memorized if possible, but at least *one* major work will be required from memory. Sight reading will be part of the examination. There will be no breakdown of marks, but the candidate must attain at least 65% (B average) in order to qualify for entrance into the Piano Performance stream of the Faculty of Music.

A separate scales test (pass-fail) at the level of Collegial II must be undertaken by those candidates who have not previously taken this piano examination or its accepted equivalent.

A list of suggested repertoire for Collegial III is available on request.

ORGAN

AOP — Articulation in Organ Playing — Gordon Phillips (Hinrichsen, No. 1001)
VOS — Organ School — Finn Videro (Wilhelm Hansen, Copenhagen) — (J. & W. Chester, London)
P — The Organ Works of Bach, new edition (Peters)
N — The Organ Works of Bach, ed. Emery (Novello)
S — The Organ Works of Bach, ed. Widor & Schweitzer (Schirmer)
D — The Organ Works of Bach, ed. Dupré (Durand)
HE — The Organ Works of Dietrich Buxtehude (Wilhelm Hansen Edition, Copenhagen)
PE — Buxtehude Orgelwerke (Peters Edition)
OUP — Oxford University Press
P.V. — Peters Verlag

(Roman numerals indicate the volumes.)

N.B. It is recommended that students explore "Beginning Organists" by David N. Johnson (Augsburg), which contains much useful material.

The following examinations are intended for performance on the organ, not on electronic instruments.

ORGAN SECONDARY I (Prerequisite: Piano Secondary III.)

Studies: The following are obligatory:
1. Bach — Herr Christ, der ein'ge Gottes-Sohn (AOP — pg. 12) (manuals only)
2. Pedal studies on pages 70, 71, 72, 73 (VOS)

Questions: Candidates will be questioned on matters of articulation, e.g., see Sections 3 and 5 (AOP) and page 15 et seq. (VOS)

Prepared Pieces: Candidates must be prepared to play one piece from each of the following three groups:

I.	Buxtehude	Puer natus in Bethlehem (VOS, 101)
	Couperin	Kyrie (VOS, 104)
	Dandrieu	Trio (VOS, 94)
	Pachelbel	Vom Himmel hoch (VOS, 108)
II.	Bach	Fugue in A minor (Eight Short Preludes and Fugues) (P. VIII; N. I)
	Bach	Herzlich tut mich verlangen (VOS, 110)
	Bach	Prelude in D minor (VOS, 112)
	Bach	Prelude in B flat (VOS, 124)
III.	Alain	Ballade en mode Phrygien (Leduc) (l'Oeuvre d'orgue de Jehan Alain — III)
	Bloch	Processional (G. Schirmer) (No. 6, Six Preludes for Organ)
	Boellmann	Menuet (Suite Gothique) (Durand)

	Willan	Ave maris stella (OUP) (No. 4, Five Preludes on Plainchant Melodies)

Sight-Reading: Appropriately graded test chosen by the examiner.

Theory and Ear-Training: Secondary I.

ORGAN SECONDARY II

Studies: The following are obligatory:

1. Bach — Vater unser im Himmelreich (AOP, 35) (manuals only)
2. Bach — Nun bitten wir den heiligen Geist (AOP, 29) (manuals only)
3. Pedal studies on pages 74, 75, 76, 77 (VOS)

Questions: Candidates will be questioned on matters of articulation, on registration, and on the tonal structure of the organ.

(See, for example, "The Organ", W. L. Sumner, 1962 edition) (Macdonald, London).

Candidates will also be questioned on the prepared pieces.

Prepared Pieces: Candidates must be prepared to play one piece from each of the following three lists:

I.	Buxtehude	Nun komm, der Heiden Heiland (HE IV, 48; PE II, 45)
	Buxtehude	Prelude and Fugue in F (HE II, 92)
	Couperin	Benedictus — Messe pour les paroisses (L'Oiseau-Lyre — Monaco, pg. 52)
	Pachelbel	Herr Christ, der einig Gottes Sohn (Bärenreiter, Bk. II, 8)
II.	Bach	Fugue on "Allein Gott in der Höh' sei Ehr' " (P. VI, 30; N. XVIII, 7)
	Bach	Prelude and Fugue in E minor (VOS, 128)
	Bach	Orgelbüchlein (P.V.; N. XV.) *One* of: Der Tag, der ist so freudenreich; Herr Jesu Christ, dich zu uns wend'; Ich ruf' zu dir, Herr Jesu Christ
	Bach	Vater unser im Himmelreich (P. VII, 66; N. XIX, 12)
III.	Robert Cundick	Moderato from Divertimento (Novello)
	Marcel Dupré	Te lucis ante terminum (Bornemann) (No. 5, "Le Tombeau de Titelouze")
	Robin Milford	Musette and Trio in D (OUP) (Seven Simple Pieces)
	Helmut Walcha	Fröhlich soll mein Herze springen (No. 7 of 25 Chorale Preludes — Set I — Peters)

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

ORGAN COLLEGIAL I

Studies: The following are obligatory:

1. Bach — Allein Gott in der Höh' sei Ehr' (AOP, 30)
2. Bach — Christ lag in Todesbanden (AOP, 25)
3. Pedal studies on pages 78, 79, 80 (VOS)

Questions: (As for Organ Secondary II.)

Prepared Pieces: Candidates must be prepared to play one piece from each of the following three groups:

I.	Buxtehude	Chaconne in E minor (HE I, 9; PE I, 64)
	Buxtehude	Prelude, Fugue and Chaconne (HE II, 5; PE I, 4)
	Couperin	Dialogue sur les grands jeux (Messe pour les paroisses, pg. 57) (L'Oiseau-Lyre)
	Pachelbel	Fugue on "Vom Himmel hoch" (Bärenreiter, Bk. II, 20)
II.	Bach	"Little" Fugue in G minor (P. IV; N. III.)
	Bach	Orgelbüchlein (P.V.; N. XV) *One* of: Herr Gott, nun schleuss den Himmel auf; Hilf Gott, dass mir's gelinge; In dir ist Freude
	Bach	Wachet auf (Schübler) (P. VI.; N. XVI.)
	Bach	Wir glauben all' an einen Gott (Fugue) (P. VII, 78; N. XVI, 49)
III.	Richard Donovan	Prelude on "Land of Rest" (Music Press, Inc., New York)
	Hindemith	Sonata No. 2, 2nd movement (Schott)
	Mendelssohn	Sonata No. 6, Fugue
	Vaughan Williams	Romanza (No. 1 of Two Preludes on Welsh Folksongs) (OUP)

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

ORGAN COLLEGIAL II

Studies: The following are obligatory:

1. Bach — Aus tiefer Not schrei' ich zu dir (AOP, 22)
2. Bach — Vom Himmel hoch (AOP, 14)
3. Pedal studies on pages 80 and 81 (VOS)

Questions: (As for Organ Sec. II & Coll. I.)

Prepared Pieces: Candidates must be prepared to play one piece from each of the following three lists:

I.	Buxtehude	Prelude and Fugue in F sharp minor (HE II, 72; PE I, 38)
	Couperin	Offertoire (Messe pour les paroisses)
	Sweelinck	Mein junges Leben hat ein Ende (Peters)
II.	Bach	Concerto No. 4 in C (P. VIII, 44; N. XI, 49)
	Bach	Nun freut euch, lieben Christen g'mein (P. VII, 36; N. XVIII, 80)
	Bach	Prelude and Fugue in A (P. II; N. III)
	Bach	Wir glauben all' an einen Gott (Double pedal) (P. VII, 82; N. XIX, 30)
III.	Seth Bingham	Rhythmic Trumpet (Galaxy)
	Marvin Duchow	Any three from Seven Chorale Preludes in Traditional Style (Berandol)
	Graham George	Two Preludes on "The King's Majesty" (H. W. Gray, New York)
	Saint-Saëns	Prelude in B (Durand)

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

HARPSICHORD

HARPSICHORD COLLEGIAL I (Prerequisite: Piano Sec. III.)

Studies: The following are obligatory:

1. Bach — Two-part Inventions (any three) (Peters or Henle)
2. Daquin — L'Hirondelle (FSI, 1.60)
3. Arne — Gigue (FSI, 1.40)

Questions: Candidates will be questioned on matters of harpsichord touch, phrasing, articulation, ornamentation and registration. (See "The Harpsichord", E. Harich-Schneider: Bärenreiter.) Candidates will also be questioned on the prepared pieces.

Prepared Pieces: Candidates must be prepared to play at least one piece from each of the four sections (English, French, German, Italian) of FSI (Ferguson, "Style and Interpretation"; an Anthology of Keyboard Music. Oxford University Press, vols. I and II.)

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary II.

HARPSICHORD COLLEGIAL II

Studies: The following are obligatory:

1. Bach — Three-part Inventions (any three) (Peters or Henle)
2. Daquin — L'Hirondelle (FSI, I.60)
3. Scarlatti — Sonata in G minor (FSI, II.61)

Questions: As for Harpsichord Collegial I.

Prepared Pieces: Candidates must be prepared to play one piece from each of the following lists: (FSI, vols. I and II)

I.	Byrd	Pavana and Galiardo (Parthenia)
	Gibbons	Fantasia of Foure Parts (Parthenia)
	Purcell	Prelude in G minor (Suite II)
II.	Couperin	La Convalescente (27e Ordre)
	Couperin	Les Ondes (5e Ordre)
	Rameau	La Triomphante
III.	Handel	Allegro in G major (Suite XIV)
	Bach	Prelude in A minor (English Suite II)
	Bach	Fugue in B minor (Albinoni)
IV.	Scarlatti	Sonata in E major
	Scarlatti	Sonata in F minor

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

VOICE

N.B. Selections offered by a candidate in one examination may not berepeated in a subsequent year's examination.

VOICE ELEMENTARY I

Studies: Vaccai — Any two contrasting studies (Schirmer).

Songs: THREE songs in all — one from each of the following groups:

I. Dowland, Purcell, Handel, Michael Head.

II. Haydn, Mozart, Schubert.

III. Italian School, i.e., La Flora, vol. I or French School, Fauré, Hahn.

Sight-Reading: Appropriately graded test chosen by the examiner.

Theory and Ear-Training: Secondary I.

VOICE SECONDARY I

Studies: Vaccai — Any two contrasting studies.

Songs: THREE songs in all — one from each of the groups given for Voice Elementary I.

Sight-Reading: Test of not greater difficulty than prepared songs of previous grade.

Theory and Ear-Training: Secondary II.

VOICE COLLEGIAL I

Studies: Concone — Any three contrasting studies chosen from Nos. 1 to 25 (Schirmer). Not for exams.

Songs: FOUR songs in all — one from each of the groups given for Voice Elementary I.

Sight-Reading: Test of not greater difficulty than prepared songs of previous grade.

Theory and Ear-Training: Secondary II.

VOICE COLLEGIAL II

Studies: Panofka — Any three contrasting studies. Not for exams.

Songs: FIVE songs in all — one from each of the following groups:
I. Early Italian School.
II. Dowland, Purcell, Handel.
III. Haydn, Mozart, Schubert.
IV. Fauré, Ravel, Hahn.

Sight-Reading: Test of not greater difficulty than prepared songs of previous grade.

Theory and Ear-Training: Secondary II.

STRINGS

N.B. Letter codes appearing in the course descriptions refer to book authors and titles, and are explained below:

F-E — Fiorillo, Etudes.
K-E — Kayser, Etudes, Op. 20.
Kr-E — Kreutzer, Etudes.
M-TSS — Mazas, Thirty Special Studies, Op. 36.
R-C — Rode, Caprices.
S-VM — Sevcik, Violin Method, Op. 6 — Part II.
S-E — Sitt, Etudes, Op. 32 — Bk. III.
W-E — Wohlfahrt, Exercises, Op. 74.
W-FS — Wohlfahrt, Foundation Studies — Bks. I and II.

VIOLIN

VIOLIN ELEMENTARY I

Scales: G and A major and minor through two octaves. D major and minor, F major through one octave, one note to each bow. (Minor scales in melodic form only.)

Studies: S-VM (No. 13); or W-E (No. 2 — with different bowings).

Prepared Pieces: One selection from the following list of pieces: Papini, Theme with Variations, Op. 57; Prachti, Twelve Easy Pieces, Op. 12; Rieding, Prière, Op. 22, No. 4; Old Masters for Young Players, Book I (ed. A. Moffat): any one; Schott's "Selected Series", Book I or III: any one.

Sight-Reading: Appropriately graded test chosen by the examiner.

VIOLIN ELEMENTARY II

Scales: G, A, and B major and minor through two octaves, four notes to each bow. (Minor scales in melodic form only.)

Arpeggios: G major and minor in first position only through two octaves: (a) one note to the bow; (b) three notes to the bow.

Studies: K-E (No. 1 — played with four different bowings); K-E (No. 7).

Prepared Pieces: One selection from the following list of pieces: Portnoff, Concerto Facile, Op. 14; Rieding, Concertino in B minor, Op. 35 (in first position); Seitz, Concertino, Op. 22, No. 5; Hans Sitt, Concertino in First Position, Op. 93 (first or last movement).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

VIOLIN SECONDARY I

Scales: Two octaves of C and B flat major and minor in second position, D major and minor in third and fourth position. Minor scales are to be played in both forms. — One note to each bow; three notes slurred to each bow.

Arpeggios: Two octaves in the keys of G and D major and minor: one note to each bow; three notes slurred to each bow.

Studies: K-E (Nos. 9 and 12); S-E (No. 42).

Prepared Pieces: One selection from the following pieces:
Portnoff, Concerto op. 13 or 14; Seitz, Concerto No. 2.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Elementary I.

VIOLIN SECONDARY II

Scales: Two octaves of E and E flat major and minor (harmonic and melodic). They start in fourth and fifth position. F major and minor (harmonic and melodic). They start in fifth and sixth position. One note to each bow; three notes slurred to each bow.

Arpeggios: Two octaves in keys of E flat, E, and F major and minor.

Studies: K-E (Nos.; 13 and 16); M-TSS (No. 4).

Prepared Pieces: One selection from the following list:
Pugnani-Moffat, Allegro entusiastico; Vivaldi: Concerto in A-minor (first movement, or second and third movement).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training Secondary I.

VIOLIN SECONDARY III

Scales: G, A, B flat, and B major and their tonic minors (harmonic and melodic) through three octaves. All scales to be played detached and three notes to a bow.

Arpeggios: G, A, B flat, and B major and minor, through three octaves: one note to each bow; three notes slurred to each bow.

Studies: K-E (Nos. 21 and 29); M-TSS (No. 7).

Prepared Pieces: One selection from the following list:

Accolay, Concerto in A minor; Seitz, Concerto No. 3, op. 12 (first movement); Concerto No. 4 (first movement); Sitt, Concertino op. 31 (first or last movement).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

VIOLIN COLLEGIAL I

Scales: All major and minor (harmonic and melodic) scales through three octaves. Slurred and detached bowing.

Arpeggios: In all major and minor keys through three octaves, one note to a bow and slurred (one bow ascending and one descending).

Studies: F-E (No. 15); Kr-E (No. 10); M-TSS (No. 18).

Prepared Pieces: Candidates must play the first piece and any one of the other four in the following list of pieces:

Handel, Six Sonatas (any one); Nardini, Concerto in E minor; Tartini, Sonata in G Minor; Viotti, Concerto No. 23 (first or last movement).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

VIOLIN COLLEGIAL II

Scales: All major and minor (harmonic and melodic) through three octaves. Also the chromatic scales of C beginning on the G string, and E beginning on the D string, through two octaves. Slurred and detached bowing.

Arpeggios: In all major and minor keys, as well as dominant and diminished seventh chords through three octaves, one note to a bow, and slurred (one bow ascending and one descending).

Studies: One selection from each of the following: F-E; Kr-E; F-C.

Prepared Pieces: Candidates must play one selection from each of the following groups of pieces:

I. Corelli-Leonard, La Folia; Kreutzer, Concerto No. 19; Rode, Concerto in A minor, Op. 8; Veracini, Sonata in E Minor.

II. Bach, Concerto in E Major; Bach, Sixth Partita in E Major, for violin alone (first movement only).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

VIOLA

VIOLA SECONDARY I (Prerequisite: Violin Elem. II)

Scales: C, D, and E major and minor melodic in two octaves, four notes to each bow.

Arpeggios: C major and minor in first position only, through two octaves: (a) one note to each bow; (b) three notes to each bow.

Studies: K-E (any one); W-FS1 (any one).

Prepared Pieces: Rieding, Concertino in B Minor, Op. 35 (viola transcription); or an easy selection from Old Masters For Young Players by Moffat-Palascho.

Sight-Reading: Appropriately graded test chosen by the examiner.

Theory and Ear-Training: Elementary I.

VIOLA 8

Scales: F and E flat major and minor (harmonic and melodic) in second position, G major and minor (harmonic and melodic) in third and fourth positions, through two octaves: (a) one note to each bow; (b) two notes slurred to each bow.

Arpeggios: C and G major and minor, through two octaves: (a) one note to each bow; (b) three notes slurred to each bow.

One selection from any of the following:

Studies: K-E (any one); W-FS2 (any one).

Prepared Piece: R. V. Williams, Viola Suite (Carol, Ballade and Musette); or selections from Old Masters For Young Players by Moffat-Palascho.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary I.

VIOLA SECONDARY III

Scales: C, D, E flat, and E major and their tonic minors (harmonic and melodic) through three octaves. To be played detached and three notes to a bow.

Arpeggios: C, D, E flat, and E major and their tonic minors through three octaves. To be played detached and three notes to a bow.

Studies: K-E (Nos. 21 and 29); M-TSS (No. 7).

Prepared Piece: Grazioli, Sonata in F; or M. Marais, Five Old French Dances; or three selections from Album of Classical Pieces, adapted for the viola by Klengel.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

VIOLA COLLEGIAL I

Scales: All major and minor (harmonic and melodic) scales through three octaves; A, A flat, B, B flat (major and minor) through two octaves. Slurred and detached bowing.

Arpeggios: All major and minor keys through three octaves, detached and slurred (one bow ascending and one descending).

Studies: Three studies, one from each of the following: F-E; K-E; M-TSS.

Prepared Pieces: Handel, Sonatas (any one of the six); Mozart, Divertimento in C; or Sitt, Concerto Op. 68.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

VIOLA COLLEGIAL II

Scales: All major and minor (harmonic and melodic) scales through three octaves, A, A flat, B, B flat (major and minor) through two octaves. Also the chromatic scale of F beginning on C string, and of A beginning on G string, through two octaves. Slurred and detached.

Arpeggios: All major and minor keys, as well as dominant and diminished seventh chords, through three octaves, detached and slurred (one bow ascending and one descending.)

Studies: Three studies, one from each of the following: F-E; Kr-E; R-C.

Prepared Pieces: Ariosti, Sonata No. 2; or Handel, Concerto. Bruch, Romance; or P. Juon, Sonata; or Hindemith, Trauermusik; Milhaud, Sonatas Nos. 1 and 2.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

CELLO

CELLO ELEMENTARY I

Scales and Arpeggios: C, G, D, and F major; A and D minor, through two octaves.

Studies: L. Feuillard, Studies for the Young Cellist (Nos. 11 and 17); Lee, Forty Studies, op. 31, No. 4.

Prepared Pieces: L. Feuillard: Selections for the Young Cellist: any two.

Sight-Reading: Appropriately graded test chosen by the examiner.

Theory and Ear-Training: Elementary I.

CELLO SECONDARY I

Scales and Arpeggios: E, A, D, A flat, and B flat major, and C sharp, F sharp, B, F, C, and G minor, through two octaves.

Studies: Dotzauer: 113 Studies (Nos. 10 and 33); L. Feuillard: Studies for the Young Cellist (Nos. 35 and 51).

Prepared Pieces: W. H. Squire: Gavotte op. 5 (Augener ed. No. 7704 B). Also one additional piece, to be selected by the teacher.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary I.

CELLO SECONDARY II

Scales and Arpeggios: All major and minor, through two octaves: detached; slurred, two notes to a bow, and four notes to a bow.

Arpeggios: All major keys, through two octaves.

Studies: Any two studies selected from the following: Dotzauer: 113 Studies (any two advanced studies); Merk: Studies (Nos. 1 and 2); Duport: Exercises No. 9); or Whitehouse: Progressive Studies for the Violincello (nos. 19, 20, 22, 24, 25, and 27).

Prepared Pieces: Breval: Sonata in C major. Also one additional piece, to be selected by the teacher.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

CELLO COLLEGIAL I

Scales: All major and minor melodic through three octaves: detached; slurred, two, four, or eight notes to a bow.

Arpeggios: All major and minor keys, through three octaves.

Studies: Duport: Any two.

Prepared Pieces: J. S. Bach: Unaccompanied Suite No. 1: any one movement; or Goltermann: Concerto in B minor (first movement); and Eccles: Sonata in G minor.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

CELLO COLLEGIAL II

Scales: All major and minor melodic scales through three octaves. Chromatic scale of F beginning on the C string, and of C beginning on the G string, through two octaves. Slurred and detached bowing.

Arpeggios: All major and minor, through three octaves.

Studies: Any two studies selected from the following: J. L. Duport, Study No. 7 or Caprice. Franchomme, Studies (any one); or Grutzmacher, Studies (any one).

Prepared Pieces: Bach, Suites (two movements from any one); Saint-Saëns, Concerto in A Minor (first movement).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

DOUBLE BASS

DOUBLE BASS ELEMENTARY I

Scales and Arpeggios: Major: C, D flat, D, E flat, G, A flat, B flat, B: through two octaves. Minor: B, F, E, G, A, B: through one octave. Bowing patterns: slurring 2, 3, and 4 to a bow, after playing the scale in a full, sustained tone, one note to a bow. Also simple rhythmic patterns.

Studies: Simandl I: up to the fourth position.

Prepared Pieces: One movement from a sonata, or any one selection from Old Masters For Young Players (Cello), ed. Moffat.

Sight-Reading: Appropriately graded test chosen by the examiner.

Theory and Ear-Training: Secondary I.

DOUBLE BASS SECONDARY I

Scales: All major and minor, through two octaves. Bowing patterns: slurring up to five notes to a bow. Spiccato.

Arpeggios: All major and minor: three slurred in a bow.

Studies: Completion of exercise portion of Simandl I, up to thumb position. Selections from Kreutzer, Moeckel, Storch-Hrabe.

Prepared Pieces: Three movements from a sonata chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

DOUBLE BASS COLLEGIAL I

Scales: Same as Sec. I. Slurring up to eight notes to a bow.

Arpeggios: Same as Sec. I. Four slurred in a bow.

Studies: Selections from Simandl II, Storch-Hrabe, Moeckel, Kreutzer. Selected orchestral passages.

Prepared Pieces: Selected movements from Bach's Suites. A full sonata chosen by the instructor. Beethoven: 5th symphony — Scherzo: 9th symphony — Recitative and Ode to Joy.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

DOUBLE BASS COLLEGIAL II

Scales and Arpeggios: Same as Coll. I, incorporating bowings from Moeckel's Studies:

Studies: Nanny, Kreutzer, Storch-Hrabe (Vols. I and II). Orchestral passages — Mozart: Symphonies Nos. 40 and 41.

Prepared Pieces: Dragonetti: Concerto.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

WOODWINDS

FLUTE

FLUTE ELEMENTARY I

Production of tone, low C to high E; Altès, Flute Method, Vol. 1; major scales to two sharps and two flats; easy pieces.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Elementary I.

FLUTE SECONDARY I

Major and minor scales and arpeggios to two sharps and two flats; Altès, Flute Method, Vol. I; Gariboldi, Etudes Mignonnes; Duets by Koehler, Telemann, Mattheson.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grades.

Theory and Ear-Training: Secondary I.

FLUTE SECONDARY II

Scales, arpeggios, and scales in thirds, to four sharps and four flats: Altès, Flute Method, Vol. II; Koehler, Etudes, op. 33, No. 1; Gariboldi, Melodious and Progressive Studies; Taffanel-Gaubert, 17 Daily Finger Exercises; Sonatas by 17th and 18th century masters.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

FLUTE COLLEGIAL I

Scales and arpeggios in all major and minor keys; Altès, Flute Method, Vol. II; Taffanel-Gaubert, 17 Daily Exercises; Moyse, Gammes et Arpèges; Anderson, 18 Studies, op. 41; Berbiguier, 18 Etudes; Sonatas by Handel and Telemann.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

FLUTE COLLEGIAL II

Moyse, Gammes et Arpèges; Andersen, 24 Studies, op. 21; Koehler, 12 Studies, op. 33, Book II; 17th and 18th century concerti.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

RECORDER

RECORDER ELEMENTARY I

Duschenes, Method for the Recorder, Part 1 (BMI Canada); scales in C, G, D, and F major; Duschenes, Studies in Recorder Playing; two easy duets and pieces with piano.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Elementary I.

RECORDER SECONDARY I

Major and minor scales and arpeggios to two sharps and two flats; Duschenes, Method for the Recorder, Part I and beginning of Part II; Easy sonatas and duets by 17th and 18th century masters; Duschenes, Studies in Recorder Playing; any two.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary I.

RECORDER SECONDARY II

Scales and arpeggios to four sharps and four flats; Duschenes, Method for the Recorder, Part II; Fifteen Solos by Anonymous Masters of the Eighteenth Century (Schott); Duschenes, Studies in Recorder Playing; Telemann, Duets; Sonatas by Handel, Loeillet, Vivaldi, Purcell.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

RECORDER COLLEGIAL I

Duschenes, Studies in Recorder Playing; Moenkemeyer. Hohe Schule (Moeck); Hoeffer-Winterfield, 40 Studies (Sikorski); Telemann, Sonatas; Bach, Brandenburg Concerto No. 4; Telemann, Suite in A minor; Telemann, Concerto in G minor; obligato parts to Bach arias; Graupner, Concerto; Tate, Spielstueck (Baerenreiter); Hoeffer-Winterfeld, 12 Etuden fuer Altfloete; ability to play soprano, alto, tenor, bass recorders. Duschenes, Method, Part II.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

RECORDER COLLEGIAL II

Moenkemeyer, Hohe Schule; Berkeley, Sonatina; Genzmer, Sonata; Bach, Brandenburg Concerto No. 2; Sammartini, Concerto in F; Telemann, Concerti in C and F major; Albinoni, Concerto in G; Naudot, Concerto in G; ability to play in C clef third line.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

OBOE

OBOE ELEMENTARY I

Posture. Position of the reed. Action of tongue. Scales. Barret, 42 Progressive Studies for the Oboe; F. Gillet, Beginning of the Oboe.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

OBOE SECONDARY I

Scales, thirds, and arpeggios. Barret, Four Sonatas and Sixteen Studies; F. Gillet, Twenty Minutes Practice.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

OBOE COLLEGIAL I

Scales. F. Gillet, Intervals and Staccato; Sellner, Exercises in Articulation; Sellner, Six First Duos for Two Oboes (Sonata Form).

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

OBOE COLLLEGIAL II

Brod, Twenty Studies; Sellner, Six Last Duos for Two Oboes; Handel, Sonata in C minor.

Sight-Reading: Test of not greater difficulty than prepared pieces of previous grade.

Theory and Ear-Training: Secondary II.

CLARINET

CLARINET ELEMENTARY I

Position of lips and fingers; tone production. Scales and arpeggios in C, F, and G major through two octaves (legato). *Studies:* "Le Débutant Clarinettiste", by A. Perrier (any one); and appropriate studies from "The Clarinet" by Thurston and Frank (Boosey & Hawkes).

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Elementary I.

CLARINET SECONDARY I

Scales and arpeggios in B flat, D, and A major, A, D, and E minor (harmonic), through two octaves; chromatic scale on E through three octaves, legato. *Studies:* Perrier, Etudes

Faciles et Progressives; and appropriate studies from "The Clarinet" by Thurston and Frank (Boosey & Hawkes).

Prepared Pieces: Slow movement from one of the clarinet concerti of Karl Stamitz.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary I.

CLARINET SECONDARY II

Scales and arpeggios in E flat, A flat and E major, G, F, and F sharp harmonic minor, through two octaves, legato, and in the pattern of two legato, two staccato. Also scales in thirds. *Studies:* Selections from: Rose, Twenty-Six Studies; Rose, Thirty-Two Studies; Blancou, Forty Studies; and appropriate studies from "The Clarinet" by Thurston and Frank (Boosey & Hawkes).

Prepared Pieces: First movement of one of the clarinet concerti of Karl Stamitz.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

CLARINET COLLEGIAL I

Scales and arpeggios in B major and C sharp minor through two and a half octaves; in fourths in F major and A minor. Whole-tone scales to be played legato and staccato throughout clarinet range. *Studies:* Labanchi, Method.

Prepared Pieces: Mozart: Slow movement from Concerto in A major, K. 622; Weber: Slow movement from Concertos No. 1 or 2; Weber: Slow movement from Duo Concertante, opus 48.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

CLARINET COLLEGIAL II

Scales and arpeggios in F sharp major and D sharp minor; in fifths in A major and G minor; in thirds on whole-tone scales through two octaves. *Studies:* A. Perrier, Etudes de Genre et d'Interprétation; Labanchi, Studies.

Prepared Pieces: Weber, Concertino; Dunhill, Phantasy.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

SAXOPHONE

SAXOPHONE ELEMENTARY I

Embouchure formation, tone production; attack. Chromatic scale, throughout complete range of instrument; major scales

in C, G, D, F, and B flat. *Studies:* Paul DeVille, The Universal Method for Saxophone; Ben Verecken, The Elementary Method for Saxophone.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Elementary I.

SAXOPHONE SECONDARY I

Vibrato studies; elementary staccato studies. Scales in C, G, D, A, E, F, B flat, E flat, and A flat major; A, E, D, G, and C harmonic minor. — Intermediate studies from the books mentioned in Grade 7.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary I.

SAXOPHONE SECONDARY II

All major and harmonic minor scales. Advanced studies from the books mentioned in Grade 7.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

SAXOPHONE COLLEGIAL I

Major and minor scales and arpeggios. Chromatic scales. Klose, Etudes; Ben Verecken, Studies, Book I; Labanchi-Iasilli, Book I.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

SAXOPHONE COLLEGIAL II

Labanchi-Iasilli, Books I and II; Mule-Soussman, Volume I. Advanced studies on chromatics. Transposition. Solos of intermediate difficulty.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

BASSOON

BASSOON ELEMENTARY I

Embouchure formation. Action of tongue and lips. Practice of attacks, long tones, fingering, scales.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

BASSOON SECONDARY I

Extension of range. Scale studies. Exercises on articulations. Weissenborn, Studies, Books I and II.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

BASSOON COLLEGIAL I

Tenor clefs. Major and minor scales. Weissenborn, Milde, Scale studies.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

BASSOON COLLEGIAL II

Legato and staccato. Eugène Jancourt, Grande Etude pour Basson, op. 55; L. Milde, Twenty-Four Studies in All Keys, op. 24.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

BRASS INSTRUMENTS

TRUMPET

TRUMPET ELEMENTARY I

Formation of basic embouchure; emphasis on mouthpiece placement, posture. Chromatic scale through one octave; major scales in three keys. Elementary beat studies. One solo piece, chosen by the instructor.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

TRUMPET SECONDARY I

Formation of basic embouchure; emphasis on breath placement, posture, attack and release. Major scales in five keys through one octave. Elementary subdivision studies One solo piece, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TRUMPET COLLEGIAL I

Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative

minor scales and tonic arpeggios in three sharps and flats through one and one-half octaves. Rhythmic studies. Reading band and orchestral materials. One solo piece, with accompaniment, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TRUMPET COLLEGIAL II

Emphasis on tone production, breath support, embouchure development; all elementary articulations: attack, release, staccato, legato; intervals. Major and relative minor scales and tonic arpeggios in five sharps and flats through one and one-half octaves; chromatic scale through two octaves. Reading band and orchestral materials.

2 STUDIES FROM: Schantl, Studies; Pares, Scale Studies; Arban, Method; Hering, 40 Progressive Studies; Endresen, Supplementary Studies; or equivalent.

ONE PIECE FROM: Balay, Petite Piece Concertante, or equivalent.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

HORN

HORN ELEMENTARY I

Formation of basic embouchure; emphasis on mouthpiece placement, posture. Chromatic scale through one octave; major scales in three keys. Elementary beat studies.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

HORN SECONDARY I

Formation of basic embouchure; emphasis on breath placement, posture, attack and release. Major scales in five keys through one octave. Elementary subdivision studies. One solo piece, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

HORN COLLEGIAL I

Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic arpeggios in three sharps and flats through one and one-half octaves. Rhythmic studies. Reading band and orchestral materials. One solo piece with accompaniment, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

HORN COLLEGIAL II

Emphasis on tone production, breath support, embouchure development; all elementary articulations; attack, release, staccato, legato; intervals. Major and relative minor scales and tonic arpeggios in five sharps and flats through one and one-half octaves; chromatic scale through two octaves. Reading band and orchestral materials.

2 STUDIES FROM: Schantl, Studies; Pares, Scale Studies; Alfonse, Book I; Horner, Primary Studies; Endresen, Supplementary Studies; or equivalent.

ONE PIECE FROM: Mozart, Concert Rondo, or equivalent.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TROMBONE

TROMBONE ELEMENTARY I

Formation of basic embouchure; emphasis on mouthpiece placement, posture. Chromatic scale through one octave; major scales in three keys. Elementary beat studies.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

TROMBONE SECONDARY I

Formation of basic embouchure; emphasis on breath placement, posture, attack and release. Major scales in five keys through one octave. Elementary subdivision studies. One solo piece, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TROMBONE COLLEGIAL I

Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic arpeggios in three sharps and flats through one and one-half octaves. Rhythmic studies. Reading band and orchestral materials. One solo piece with accompaniment, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TROMBONE COLLEGIAL II

Emphasis on tone production, breath support, embouchure development; all elementary articulations: attack, release, legato, staccato; intervals. Major and relative minor scales and tonic arpeggios in five sharps and flats through one and one-half octaves; chromatic scale through two octaves. Reading band and orchestral materials.
2 STUDIES FROM: Schantl, Studies; Pares, Scale Studies; Slama, 66 Etudes; Arban, Method; Endresen, Supplementary Studies; or equivalent.
ONE PIECE FROM: Croce-Spinelli, Solo de Concours, or equivalent.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TUBA

TUBA ELEMENTARY I

Formation of basic embouchure; emphasis on mouthpiece placement, posture. Chromatic scale through one octave; major scales in three keys. Elementary beat studies.

Sight-Reading: Appropriately graded test chosen by examiner.

Theory and Ear-Training: Secondary I.

TUBA SECONDARY I

Formation of basic embouchure; emphasis on breath placement, posture, attack and release. Major scales in five keys through one octave. Elementary subdivision studies. One solo piece, to be chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TUBA COLLEGIAL I

Development of basic embouchure; emphasis on tone production, sustained tones, staccato and legato. Major and relative minor scales and tonic arpeggios in three sharps and flats through one and one-half octaves. Rhythmic studies. Reading band and orchestral materials. One solo piece with accompaniment, chosen by the instructor.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

TUBA COLLEGIAL II

Emphasis on tone production, breath support, embouchure development; all elementary articulations: attack, release, staccato, legato; intervals. Major and relative minor scales and tonic arpeggios in five sharps and flats through one and

one-half octaves; chromatic scale through two octaves. Reading band and orchestral materials.
2 STUDIES FROM: Schantl, Studies; Pares, Scale Studies; Eby, Book I; Arban, Method; Endresen, Supplementary Studies; or equivalent.
ONE PIECE FROM: Cohen, Romance and Scherzo, or equivalent.

Sight-Reading: Test of not greater difficulty than prepared work of previous grade.

Theory and Ear-Training: Secondary II.

OTHER INSTRUMENTS

PERCUSSION

PERCUSSION ELEMENTARY I

Hand position on snare drum (traditional or match grip) from Jacques Delécluse: Méthode de Caisse-claire. Concentration on rhythm with metronome.

Theory and Ear Training: Secondary I.

PERCUSSION SECONDARY I

Exercises for alternation from Jacques Delécluse: Méthode de Caisse-claire. Tympani roll from Pierre Béluse: Basic Tympani Technique.

Theory and Ear Training: Secondary II.

PERCUSSION COLLEGIAL I

The roll and its explanation from Jacques Delécluse: Méthode de Caisse-claire. Exercises on tympani tuning from Pierre Béluse: Basic Tympani Technique.

Scales: All major scales on keyboard instruments.

Theory and Ear Training: Secondary II.

PERCUSSION COLLEGIAL II

The rebound and its control from Jacques Delécluse: Méthode de Caisse-claire. Tympani studies from Jacques Delécluse: Trente (30) Etudes. Book I.

Scales: All harmonic and melodic scales on keyboard instruments.

Theory and Ear Training: Secondary II.

HARP

N.B. The Harp syllabus is available upon request.

GUITAR

GA — Guitar Archives: Schott Edition
UE — Universal Edition

GUITAR ELEMENTARY I

Scales: Major and melodic minor, up to two sharps in one octave.
Arpeggios: One suitable study.
Prepared Pieces: Five pieces by different composers from: "The Guitarist's Hour" (GA 19).
Sight-Reading: Appropriately graded test chosen by examiner.

GUITAR ELEMENTARY II

Scales: Major up to four sharps, and melodic Minor up to two sharps and two flats in two octaves.
Arpeggios: One suitable study, using more complex progressions than for previous grade.
Prepared Pieces: One piece from each of the following composers: F. Sor, M. Giuliani, A. Kueffner, D. Aguado, A. Diabelli. (GA 19-33-67-85).
Sight-Reading: Test of not greater difficulty than pieces of previous grade.
Theory and Ear-Training: Elementary I.

GUITAR SECONDARY I

Scales: Major including all sharps and up to three flats in two octaves. Minor up to three sharps and three flats in two octaves.
Arpeggios: One suitable study including the use of *barré.*
Prepared Pieces: Two studies by M. Carcassi (GA 2 or 43). One study by F. Sor, Op. 31 (GA 79-81). Two Renaissance or early Baroque dances of free choice. One piece by A. Uhl (UE 11180).
Sight-Reading: Test of not greater difficulty than pieces of previous grade.
Theory and Ear-Training: Secondary I.

GUITAR SECONDARY II

Scales: Major and minor in all sharps in two octaves. Major and minor up to four flats in two octaves.
Arpeggios: One study including *barré* and left hand playing.
Prepared Pieces: One study by M. Carcassi or D. Aguado (GA 2-43-62). One study by F. Sor (GA 79-81), or I. Presti. Two pieces by two of the following composers: L. Milan, A. Mudarra, the Neusiedlers, A. LeRoy, or John Dowland. (Preferably 3rd string tuned in F sharp.) One piece by F. Tarrega. One piece from 20th Century literature.
Sight-Reading: Test of not greater difficulty than pieces of previous grade.
Theory and Ear-Training: Secondary II.

GUITAR COLLEGIAL I

Scales: All Major and Minor in two octaves, as well as chord progressions. Chromatic in three octaves.

Arpeggios: One or two suitable studies using barred chords and left-hand playing.

Prepared Pieces: One difficult study by M. Carcassi. Two difficult studies by F. Sor. Two pieces, suitable for this grade, from the Italian, French and Spanish Renaissance or the Elizabethan period. Two dances or movements of two of the following composers: J. S. Bach, L. Weiss, D. Gauthier, E. Reussner or R. de Visée. One piece by a modern Spanish composer.

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

GUITAR COLLEGIAL II

Scales: All Major and Minor in two octaves, as well as chord progressions. E-F-F sharp-G major and minor in three octaves.

Studies: One study for the left hand. One study for *barré* and arpeggios.

Prepared Pieces: One Elizabethan dance. Suite in D minor — R. de Visée. One piece by J. S. Bach, suitable to this grade. One piece or Prelude by F. Tarrega. Two Preludes by M. Ponce. One piece from the 20th Century.

Sight-Reading: Test of not greater difficulty than pieces of previous grade.

Theory and Ear-Training: Secondary II.

LOCAL CENTRES OF THE McGILL PREPARATORY SCHOOL OF MUSIC

The following places have been adopted as centres for public examinations in Music; others will be added as necessity requires, but in all cases the establishment of a centre depends upon a sufficient number of candidates applying. All Grade Certificate examinations are held at these centres:

QUEBEC

Regional Representative: Northern Area
Mr. B. R. Sanford,
Principal,
Queen Elizabeth School,
Sept-Iles, Que.

Arvida
Hon. Secretary:
Mrs. Jeannine P. Partous,
312 Dickie St.,
Arvida, Que.

Howick
Hon. Secretary:
Mrs. Ainsworth Johnstone,
1 Lafond Street,
Howick, Que.

Huntingdon
Hon. Secretary:
Mlle Gilberte Demers,
Box 554,
30A Châteauguay St.,
Huntingdon, Que.

Shawville
Hon. Secretary:
Mrs. Evelyn M. McDowell,
Box 449,
Shawville, Que.

Sept-Iles
Hon. Secretary:
Mme Lucien Morin,
839 Bourgeois St.,
Sept-Iles, Que.

Shawinigan
Hon. Secretary:
Mlle Marie-Paule Préfontaine
228 Fourth Street,
Shawinigan, Que.

Sherbrooke
Hon. Secretary:
Mr. G. L. Rothney,
P.O. Box 698,
35 Lorne Ave.,
Lennoxville, Que.

Sutton
Hon. Secretary:
Mrs. S. N. Pergau,
Box 173,
Sutton, Que.

McGill University

SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY

Under the Administrative Jurisdiction
of the Faculty of Medicine

1973-74

Davis House
3654 Drummond Street*
Montreal 109, Quebec, Canada
Telephone (514) 392-4320

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2 General Information
3 Regulations Governing Attendance, Advancement and Examinations
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5 Postgraduate Courses in Physical Therapy
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* The official McGill University mailing address is:
McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 11 73

STAFF

.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A. (U.B.C.), Ph.D., F.R.S.C., F.R.S.
Principal and Vice-Chancellor

Stanley B. Frost, B.D., M.Th. (London), D.Phil. (Marburg), D.D. (Vic., Tor.), D. Litt. (Mem.)
Vice-Principal (Administration and Professional Faculties)

Sigil D. Pedersen, B.A.(SGWU), M.A.(McGill), Ed.D.(Harvard) *Vice-Principal (Academic)*

Allan C. McColl, D.F.C., B.Com., C.A. *Director of Finance*

Robert P. Cronin, M.D., C.M., M.Sc., M.R.C.P. (London), F.R.C.P.(C)
Dean of the Faculty of Medicine

Guy H. Fisk, B.A., M.D., C.M., D.T.M. & H. (Eng.), F.R.C.P.(C)
Director and Associate Professor

Helen M. Gault, B.Sc. (P. & O.T.), T.M.M.G., T.M.E. (Eng) *Associate Professor*

.2 STAFF BY DEPARTMENTS

OCCUPATIONAL THERAPY
Associate Professor – Guy H. Fisk
Assistant Professor – J.D. Field
Lecturers – B. Roper, D.A. Roulston, E. Stocks
Demonstrator – B.A. Rosenthal

PHYSICAL THERAPY
Associate Professors – Guy H. Fisk, H.M. Gault
Assistant Professors – E.P. Aston, A.M. Van Daele, J.Ward, P.A. Wells
Lecturers – B.E. Beatty, S. Dauphinee

2 GENERAL INFORMATION

2.1 DEGREES OFFERED

Physical Therapy is the art and science of physical treatment and rehabilitation utilizing physical, chemical, electrical and electromagnetic properties in conjunction with the manual skills of massage and therapeutic exercises for an individual who manifests physical and psychological disorders. The scope of the profession includes patient evaluation, treatment planning, treatment delivery, education and consultation in cooperation with the medical and paramedical professions and the social agencies concerned.

Occupational Therapy is the science of directing man's response to selected activity to promote and maintain health, to prevent disability, to evaluate behaviour and to treat or train patients with physical or psychological dysfunction.

2.1.1 BACHELOR OF SCIENCE IN PHYSICAL THERAPY [B.Sc. (Phys. Ther.)]

The full curriculum consists of three academic years from a College Program in the Health Sciences or equivalent. Included during the three year program are courses in science together with professional training in Physical Therapy. Clinical experience is provided in the teaching hospitals of the Faculty of Medicine, McGill University, and other affiliated centres.

2.1.2 BACHELOR OF SCIENCE IN OCCUPATIONAL THERAPY [B.Sc. (Occ. Ther.)]

The full curriculum consists of three academic years from a College Program in the Health Sciences or equivalent. Included are courses in science together with professional training in Occupational Therapy. Clinical experience is provided in the teaching hospitals of the Faculty of Medicine, McGill University, and other affiliated centres.

2.1.3 BACHELOR OF OCCUPATIONAL THERAPY (B.Occ. Ther.)

This program is being phased out and only year three will be offered in 1973-74. No further admissions to this course are being considered.

2.1.4 MASTER OF SCIENCE (APPLIED) IN PHYSICAL THERAPY

The full curriculum consists of two years of study following a Bachelor of Science degree in Physical Therapy or equivalent plus two years of clinical experience. (See Section 5.2)

2.2 ENTRANCE QUALIFICATIONS

The undergraduate programs in the School of Physical and Occupational Therapy have been designed on the assumption that the student has a background in science equivalent to that provided by the Quebec Diploma of Collegial Studies in science; that is, that he has completed the equivalent of introductory college-level courses in biology, chemistry (inorganic and organic), physics and mathematics. Recommended options also include introductory psychology and sociology.

Ontario Grade 13 graduates and students who have completed first year at Memorial University, Nfld. are considered for entrance to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned.

Students from provinces in Canada other than Quebec, Ontario, and Newfoundland who have completed Grade 12 with adequate standing in appropriate subjects are considered for admission to a university program requiring the completion of 120 credits.

Graduates from Grade 12 in the United States are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. An Advanced Placement science course is considered the equivalent of 6 prerequisite credits; a grade of "3" or better is required for Advanced Placement credit to be granted.

Students from the United Kingdom and Commonwealth countries are normally required to have completed examinations in five different G.C.E. subjects including English, chemistry, physics, and mathematics, at least two of which must be at the Advanced Level. Such students are considered for admission to a university program requiring the completion of the difference between 120 credits and the number of prerequisite credits they have earned. Each G.C.E. Advanced Level paper in Science with a grade of "C" or better is considered the equivalent of ten prerequisite credits.

2.3 REQUIREMENTS FOR ADMISSION TO FIRST YEAR PROGRAMS LEADING TO B.Sc. (Occ. Ther.) OR B.Sc. (Phys. Ther.)

The programs in the School of Physical and Occupational Therapy have been designed on the assumption that the student has completed the equivalent of introductory college-level courses in biology, chemistry, physics and mathematics and preferably introductory psychology and sociology. These courses are referred to as prerequisite courses.

2.3.1 APPLICATION FOR ADMISSION

Application for admission to any year must be made through the Admissions Office of the University. March 1 is the last date for the receipt of applications from all students. Supporting documents (school records, etc.) should be sent as soon as they are available, if they cannot be sent with the application.

Students in Canadian high schools must write the tests of the Service for Admission to University (SACU). Application forms and information concerning these tests may be obtained through the schools or from SACU Test Administration, 151 Slater Street, Ottawa 4, Ontario K1P 5N1.

Students from the United States must write College Entrance Examination Board tests, the two scholastic aptitude tests, the English composition test and any two other achievement tests. The writing sample is not accepted. Students from the Eastern United States may obtain information about the tests, testing centres, etc., by writing to: The College Entrance Examination Board, Box 592, Princeton, New Jersey 08540. Students from the West should write to: The College Entrance Examination Board, Box 1025, Berkeley, California 94701. The applications of these students are judged on the basis of the complete high school record, including the marks for the first semester of the final year, and other data as described on the application form.

Students from overseas are advised to write the CEEB or SACU tests to support their application.

Applicants whose mother tongue is not English must submit acceptable evidence of facility in English. The following evidence is acceptable: the Test of English as a Foreign Language (TOEFL); the University of Michigan English Language Test; the Certificate of Proficiency in English issued by the Universities of Cambridge and Michigan.

TOEFL is preferred by the University; it is administered by the College Entrance Examination Board and is easily available throughout the world. Students who cannot obtain a TOEFL bulletin and registration form locally should write well in advance for them to: Test of English as a Foreign Language, Box 899, Princeton, N.J. 08540, U.S.A. . Tests should be written, if possible, in October or January. The fee is $10.00 (American funds).

For further information see the *General Announcement.*

2.3.2 LANGUAGE POLICY

The normal language of instruction at McGill is English. Students may if they wish write term papers and examinations in French, but reasonable competence in English is essential to success in the university programs. The English department offers a summer course, English 115, and it is recommended that students who lack fluency in English take this summer course.

2.4 FEES

Annual Undergraduate fee (including Students' Society fee) $610

Annual approximate expenses for uniforms, textbooks, etc. $200

2.4.1 GENERAL REGULATIONS

1) Students entering the University for the first time are required to pay their fees either by mail or in person at the Accounting Office.

The first instalment is due within 10 days of registration, the second instalment before January 15, 1974. No invoice will be sent.

A late payment fee of $5.00 is charged for payment after the specified dates.

2) Students who have completed one or more years and intend to register in the succeeding year must pay one half of the total sessional fee by mail or in person to the Accounting Office before August 25, 1973, otherwise they will not be permitted to register. Instructions for paying fees in advance will be mailed to all upper year students, either with their Reports of Sessional Standing or a short time later. Students who have been notified by the University of the award of a scholarship, bursary or student loan, and who require this for payment of the first instalment of fees, must obtain from the Student Aid Office, McGill University, a Permit to Delay Payment of Fees.

The second instalment is due January 15, 1974. A late payment fee of $5.00 is charged for payment after the specified dates. No invoice will be sent.

3) Income tax receipt forms will be sent automatically by the Accounting Office.

4) Students registering late must pay their fees at the time of registration, failing which they become subject to the late payment fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

2.5 PRIZES

The Canadian Physiotherapy Association Book Prize is awarded to the student with the highest standing throughout the B.Sc. (Phys. Ther.) program.

The Carol Rutenberg-Silver Memorial Award is presented to the student with the highest standing in the final year of the B.Sc. (Phys. Ther.) program.

The Canadian Association of Occupational Therapists' Award is presented to the student with the highest standing in theory, in the final year of the B.Occ.Ther. or the B.Sc. (Occ. Ther.) programs.

The Quebec Society of Occupational Therapists Book Prize is awarded to the student with the highest standing in practical application of Occupational Therapy throughout the B.Occ. Ther. or the B.Sc. (Occ. Ther.) programs.

2.5.1 SCHOLARSHIPS ANNOUNCEMENT

A complete list of scholarships and bursaries and the regulations governing the various loan funds are given in the *Scholarships Announcement* which may be obtained from the Registrar's Office.

2.6 LICENCE TO PRACTISE

Certain provinces in Canada and states of the United States of America require that those intending to practise occupational therapy or physiotherapy within their borders comply with special provincial or state licensing regulations. Further information may be obtained from the offices of the associations listed below.

2.7 PROFESSIONAL ASSOCIATIONS

In order to comply with the standards necessary for membership in the Canadian Association of Occupational Therapists and the Canadian Physiotherapy Association, students may be

quired to fulfil further hospital practice in accredited hospital departments.

This standard is compatible with the licensing requirements in provinces where gislation is in force.

anadian National Offices

Canadian Association of Occupational Therapists
4 New Street
Suite M 19
Toronto 189, Ontario

Canadian Physiotherapy Association
25 Imperial Street
Toronto 197, Ontario

merican National Offices

American Occupational Therapy Association Inc.
6000 Executive Blvd.
Suite 200
Rockville, Maryland 20852

American Physical Therapy Association
1156 - 15th Street NW
Washington, D.C. 20005

3 REGULATIONS GOVERNING ATTENDANCE, ADVANCEMENT AND EXAMINATIONS

3.1 ATTENDANCE AND TERM WORK

lo student will be permitted to write an examination in any course unless he has fulfilled he requirements of the course to the satisfaction of the instructor and the Director of the chool.

It is the responsibility of each student to make sure at the time of registration that here is no conflict in the timetable of the courses which he proposes to follow.

Students may be required to attend lectures regularly if the Faculty so rules. Excuses for absences are dealt with only by the Director. For illness necessitating an absence f a week or more, a medical certificate should be presented to the Office of the Director mmediately after a student's return to normal attendance.

All lectures begin at five minutes after the hour, and end at five minutes before he hour. An instructor may deny entrance to a student who is late.

3.2 CREDIT SYSTEM

All courses carry a credit rating. A total of 100 credits must be passed either for a degree in Occupational Therapy or for a degree in Physical Therapy.

Courses are graded either by letter grades or in percentages, with the following correspondences: A (80 – 100%), B (65 – 79%), C (55 – 64%), D (45 – 54%), F (0 – 44%). Grades A, B, C are termed satisfactory passes, D a conditional pass and F a failure.

Numerical equivalents of 4, 3, 2, 1, 0 are attached to the grades of A, B, C, D, F respectively. The earned grade point for each course is calculated by multiplying the credit rating of the course by the numerical equivalent of the letter grade earned. Standing will be determined on the basis of a grade point average (GPA) computed by dividing the sum of the grade points accumulated during the year by the total course credits attempted.

The cumulative grade point average (CGPA) will be the grade point average calculated using the student's entire record in the program. A failed course will continue to be used in the calculation of the CGPA even after the course is repeated and passed, or if a supplemental examination is taken.

3.3 ACADEMIC ADVANCEMENT

There are three categories of standing: Satisfactory, Probationary and Unsatisfactory.

A student must maintain a Satisfactory standing with a GPA of 2.0 or above.

Full time students in Satisfactory standing take between 12 and 18 credits per term. A load of 19 credits per term is permitted students whose GPA is above 3.0.

All professional courses in Occupational Therapy and Physical Therapy must be passed with a grade of C or better. Any student obtaining an F grade in any professional course will be required to repeat that course. A student receiving a D grade in a professional course may be required to repeat the course or do some supervised remedial work prior to sitting the supplemental examination. Evidence that the student has taken sufficient extra tuition as would indicate that he has reviewed the subject and is a suitable candidate for the supplemental examination must be shown.

A GPA of less than 2.0 places a student in Unsatisfactory standing.

Students in Unsatisfactory standing must withdraw from the Faculty. They may be readmitted after appeal to the Promotions Committee of the School and subsequently considered on Probationary standing. A student in Unsatisfactory standing for the second time will be required to withdraw permanently.

The Faculty reserves the right to require the withdrawal of any student at any time if in the opinion of his instructors he is incompetent.

3.4 DEGREE REQUIREMENTS

A student must have accumulated 100 course credits for either the degree of B.Sc. (Occ. Ther.) or the degree of B.Sc. (Phys. Ther.) (i.e. passed courses whose credit total is 100), passed satisfactorily all professional courses and have a CGPA of at least 2.0.

3.5 ACADEMIC CREDIT TRANSFER AGREEMENT

In certain cases, credit may be granted by the Faculty for courses taken at other universities. Not more than 30 transfer credits will be allowed towards the degree.

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal, or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement* for details.

3.6 EXAMINATIONS

Students may write examinations or term papers in English or French.

3.6.1 INTERIM TESTS

Members of the teaching staff may from time to time give interim tests if they think them necessary.

3.6.2 FINAL EXAMINATIONS

Final examinations in one term courses are held at the end of the term in which the courses are given. Final examinations in courses continuing in both terms are held at the end of the session i.e. April-May. In some courses there is no final examination; standing in these courses is determined on the basis of term work and class tests.

3.6.3 SUPPLEMENTAL EXAMINATIONS

A student who has failed in a sessional examination and who has been given permission to write a supplemental examination must avail himself of this privilege at the time of the next supplemental examination period. Written application to write a supplemental examination must be received at the Director's Office before July 2. A fee of $10.00 for each supplemental paper is payable to the Cashier as soon as the application has been approved.

A student who, for reasons such as illness or family affliction, verified and accepted by the Director's Office, has been unable to write one or more sessional examinations, may receive permission to write supplemental examinations in their stead. The Director's Office must be informed within one week of the examination of the reasons for absences. An "L" will appear on the Report of Standing in place of a grade in such courses and will be replaced by the grade obtained in the deferred examination after it has been written.

Instructors are not permitted to grant any special treatment, regarding examinations, to any student. Faculty requires all instructors to decline to discuss a student's mark with him before its official publication. If a student believes there is some circumstance which might be legitimately taken into account in evaluating his performance, he should apply to the Director.

4 UNDERGRADUATE COURSES OF INSTRUCTION

4.1 BACHELOR OF SCIENCE IN OCCUPATIONAL THERAPY

The curriculum consists of three academic years from a College program plus approximately 500 hours of Clinical Affiliation. The program is made up of 100 credits, 49 credits in professional courses, including the Clinical Affiliation, and 51 credits for academic courses in the Faculties of Arts and Science.

4.1.1 UNIVERSITY 1

504-414A Anatomy (3 credits; 1 hour lecture, 4 hours laboratory on prepared specimens.) Gross anatomy of the limbs and back with some sessions devoted to the visceral systems of the body. Members of the Anatomy Department

552-201A Physiology of Man. (3 credits.)

552-202B Physiology of Man. (3 credits.)

(See calendar of the Faculties of Arts and Science.)

580-221A **Occupational Therapy 1.** (3 credits.) A course to include kinesiology, activity analysis, hospital orientation and professional development.

580-231B **Medical Science 1 .** (3 credits.) A course covering human growth and development.

580-232B **Medical Science 11.** (3 credits.) A course to include

a) Basic concepts of pathology.
b) Pathophysiology and clinical features of disorders of the musculoskeletal system – fractures, orthopaedics, rheumatology and related collagen diseases.
c) Introduction to psychiatry.

Members of the Faculty of Medicine and Others

580-222B **Occupational Therapy 11.** (3 credits.) A course to include

a) Occupational therapy in the treatment of conditions studied in Medical Science 580–232B.
b) Muscle testing, joint range measuring, gait analysis.
c) Techniques of treatment in Occupational Therapy.

ELECTIVES (See note on Electives, page

CLINICAL AFFILIATION. 70 hours following end of term.

4.1.2 UNIVERSITY 2

504-421A **Anatomy.** (3 credits; 2 hours lectures, 2 hours laboratory.) General neuroanatomy emphasizing the structure and function of the brain and spinal cord.

Members of the Anatomy Department

580-333A **Medical Science 111.** (3 credits.) A course to include the pathophysiology and clinical features of

a) Neurological conditions.
b) Psychiatric conditions.

Members of the Faculty of Medicine and Others

580-323A **Occupational Therapy 111.** (3 credits.) A course to include

a) Occupational therapy in the treatment of conditions studied in Medical Science 580–333A.
b) Functional assessment.

580-324B **Occupational Therapy IV.** (3 credits.) A course to include

a) Techniques of treatment used in Occupational Therapy with children.
b) Occupational Therapy in the treatment of children.
c) Perceptual-motor evaluation and treatment.

580-334B **Medical Science IV.** (3 credits.) A course to include the pathophysiology and clinical features of

a) Respiratory and cardiovascular conditions.
b) Amputations, burns, dermatological conditions and diabetes.

Members of the Faculty of Medicine and Others

580-325C **Occupational Therapy V.** (3 credits.) A course to include

a) Techniques of treatment used in Occupational Therapy.
b) Occupational Therapy in the treatment of conditions studied in Medical Science 580–334B.

580-326B **Occupational Therapy VI.** (3 credits.) A course to include

a) Splinting and adapted equipment.
b) Introduction to professional writing.
c) Advanced theories of Occupational Therapy in the treatment of psychiatric conditions.

ELECTIVES (See note on Electives, below.)

CLINICAL AFFILIATION. 280 days following end of term.

4.1.3 UNIVERSITY 3

580-435C **Medical Science V.** (3 credits.) A course to include

a) Child psychiatry.
b) Adolescent and geriatric conditions.
c) Community medicine.
d) Rehabilitation clinics.

Members of the Faculty of Medicine and Others.

580-427C **Occupational Therapy VII.** (3 credits.) A course to include

A) Techniques of Occupational Therapy.
b) Occupational Therapy in the treatment of conditions covered in Medical Science 580—435C.

580-428A **Occupational Therapy VIII.** (3 credits.) Projective Techniques — a course to include the theory, assessment and change detection procedures and the therapeutic use of projective techniques.

204-204A **Psychological Statistics.** (3 credits.) See calendar of the Faculties of Arts and Science.

580-429B **Occupational Therapy IX.** (3 credits.) Group Dynamics — A course to include theory of groups, group development and management and the therapeutic use of groups in Occupational Therapy.

580-420C **Occupational Therapy X.** (3 credits.) A course to include department and program planning, management and supervision; interdisciplinary relationships and communication; sheltered workshops; research techniques and professional writing. Members of the Occupational Therapy Staff and Others

580-431D **Occupational Therapy XI.** (4 credits.) Hospital practice in McGill—affiliated and other selected hospitals is arranged at suitable periods throughout the three years of the course.

ELECTIVE COURSES A total of thirty-six credits are to be taken in elective courses throughout the three years. Included must be a science continuation of eighteen credits.

4.2 Bachelor of Occupational Therapy

The following program is being phased out and is applicable only to students who are presently enrolled. New students will register for the Bachelor of Science (Occupational Therapy) program as outlined in 4.1.

4.2.1 THIRD YEAR

588-407D **Occupational Therapy.**

A. GROUP DYNAMICS AND PROJECTIVE TECHNIQUES and their application in the diagnosis and treatment of psychiatric conditions.
B. METHODS OF PRE-VOCATIONAL AND VOCATIONAL EVALUATION: job-analysis; work testing; work tolerance and work hardening. Theories, types and value of Sheltered Workshops.

C. DEPARTMENT MANAGEMENT. Administration of an O.T. department; medico-legal responsibilities; staff management; student training, ordering and caring for equipment and supplies.
D. INTRODUCTION TO PHYSIOTHERAPY.
E. METHODS OF INVESTIGATIVE PROCEDURES: PART 11. Assignment: Essay.
F. PAEDIATRICS 11. Assessment and techniques.
G. CLINICAL PRACTICE. Assessment and treatment of patients carried out under supervision in teaching hospitals.

(360 hours undertaken as interneship during the summer.)

Psychology. One course selected from the calendar of the Faculty of Science.

Electives (3). Selected from the Calendar of the Faculty of Arts. One elective must be continued from Year 2, and one elective must be Anthropology or Sociology if not chosen in any previous year.

4.3 Bachelor of Science in Physical Therapy

The curriculum consists of three academic years from a College program plus 600 hours of Clinical Affiliation. The total program is made up of 100 credits, 54 being taken in the professional courses including the term in clinical affiliation and 46 credits from the Faculties of Arts and Science.

4.3.1 UNIVERSITY 1

504-413A **Anatomy.** (4 credits; 1 hour lecture, 5 hours laboratory dissection.) Gross anatomy of the limbs and back. **Members of the Anatomy Department**

504-312B **Human Visceral Anatomy.** (3 credits; 2 hours lectures, 2 hours laboratory on prepared specimens.) Gross anatomy of the visceral systems, including the circulatory, respiratory, digestive and reproductive systems.
Members of the Anatomy Department

581-260D **Physical Therapy I — functional anatomy.** (6 credits; 4 hours per week.) A seminar course on surface anatomy; fundamentals of kinesiology and analysis of movement including muscle testing and joint range measurement.

581-210A **Physical Therapy II — therapeutic exercise.** (3 credits; 10 hours per week.) The theoretical and practical study of postural assessment, massage, hydrotherapy, and the therapeutic uses of exercise therapy in preparation for application in the clinical setting.

581-211A **Physical Therapy III — professionalism.** (2 credits; 3 hours per week.) A study of the profession of Physical Therapy including its history, the professional associations, educational and governmental influences.

581-211B **Physical Therapy IV — group dynamics.** (2 credits; 3 hours per week.) The group process as it applies in the practice of Physical Therapy.

581-230B **Medical Science I.** (3 credits; 3 hours per week.) A lecture course consisting of a general introduction to pathology and disorders of the musculo-skeletal system including fractures, orthopaedics, rheumatology and related collagen diseases. **Members of the Faculty of Medicine including Physical Therapy staff**

581-215B **Physical Therapy V — treatment procedures.** (4 credits; 10 hours per week to include lectures, practical classes and clinical demonstrations.) A course consisting of clinical examinations, assessments and recordings, and methods of physical treatment of the disorders covered in Medical Science 581-230B.

ELECTIVES (See note on Electives, page 14.)

Clinical Affiliation 6 weeks following end of second term (see Physical Therapy XII 581-415D, page 14)

4.3.2 UNIVERSITY 2

504-421A **General Human Neuroanatomy.** (3 credits; 2 hours lectures, 2 hours laboratory.) General neuroanatomy emphasizing the structure and function of the brain and spinal cord. **Members of the Anatomy Department**

552-201A **Physiology of Man.** (3 credits.)

552-202B **Physiology of Man.** (3 credits.)
(See calendar of the Faculties of Arts and Science.)

581-330A **Medical Science II.** (3 credits; 3 hours per week.) A lecture course consisting of the pathophysiology and clinical features of neurological conditions.
Members of the Faculty of Medicine including Physical Therapy Staff

581-330B **Medical Science III.** (3 credits; 3 hours per week.) A lecture course consisting of the pathophysiology and clinical features of respiratory and cardiovascular conditions, amputations, dermatology, obstetrics and gynecology.
Members of the Faculty of Medicine including Physical Therapy Staff

581-315A **Physical Therapy VI – treatment procedures.** (4 credits; 10 hours per week to include lectures, practical classes and clinical demonstrations.) A course consisting of clinical examinations, assessments, recordings and methods of physical treatment of the conditions covered in Medical Science 581-330A.

581-316B **Physical Therapy VII – treatment procedures.** (3 credits; 8 hours per week to include lectures, practical classes and clinical demonstrations.) A course consisting of clinical examinations, assessments, recordings and methods of physical treatment of the conditions covered in Medical Science 581-330B.

581-325B **Physical Therapy VIII – electrotherapy.** (3 credits; 7 hours per week.) A theoretical and practical course covering physical principles and techniques of application of electrodiagnostic procedures, electrotherapy, heat therapy, cryotherapy and radiation therapy.

Electives (See note on Electives, page 14)

Clinical Affiliation 3 weeks (see Physical Therapy XII 581-415D, page 14)

4.3.3 UNIVERSITY 3

581-455A **Neurophysiology.** (3 credits; 3 hours per week.) Postural mechanisms: A study of neurophysiological principles of sensori-perceptuo-motor interaction as they relate to postural integration and motor behavior.

581-420A **Medical Science IV.** (3 credits; 3 hours per week.)
i. A lecture course in psychiatry with emphasis on the psychological problems of the physically disabled.
ii. An introduction to epidemiology with emphasis on community needs and resources related to the problems of the physically disabled.
Members of the Faculty of Medicine including Physical Therapy Staff

581-435A **Physical Therapy IX – co-ordinated rehabilitation.** (3 credits; 3 hours per week.) A study of the interdisciplinary approach to rehabilitation: the role played by the physical therapist and related paramedical groups in total patient care (inhalation therapists, nurses, occupational therapists, prosthetists, social workers, speech therapists and others). This course will run concurrently with Medical Science IV 581-420A.

581–440B **Physical Therapy X – administration and research methodology.** (3 credits; 3 hours per week.) A seminar and project course on departmental administration, methods of supervision, professional ethics, medico–legal responsibilities and research procedures applicable to Physical Therapy.

518–438B **Physical Therapy XI – specialized study.** (3 credits; 4 hours per week.) A project course of specialized study in one of the following areas selected by the student: kinesiology, pathokinesiology, sports medicine, psychiatry, neuro-developmental techniques, perception, prosthetics and orthotics.

581-415D **Physical Therapy XII – clinical affiliation.** (6 credits; 600 hours of clinical experience carried out during the three year program at selected intervals.) Supervised clinical practice is provided for students in the following areas: physiotherapy departments in hospitals and rehabilitation centres affiliated to the Faculty of Medicine, convalescent and home care facilities, specialized schools and community centres.
This course commences at the end of the academic year in U1 and continues throughout the program. Clinical affiliation will extend until June 1st in each year.

ELECTIVE COURSES Twenty-seven credits are to be taken in elective courses selected from the calendar of the Faculties of Arts or Science. Within this choice of electives, there must be a continuation in a science subject of 18 credits and a 3 credit course in statistics.

5 POSTGRADUATE COURSES IN PHYSICAL THERAPY

5.1 General Courses

The following courses are open to Physical Therapists who hold a B.Sc. Degree.

581-520D **Physical Therapy. Educational Methods.** (6 hours per week.) A course designed to relate educational methods to Physical Therapy instruction.
This course will include seminars, observation sessions and supervised teaching experience both in the classroom and the hospital setting. Field experience in student supervision and clinical teaching will be carried out in Physical Therapy departments during the month of May.

581-530B **Physical Therapy. Curriculum Development for Physical Therapy.** (3 hours per week.) A course emphasizing current thought in education, curriculum development and factors underlying curriculum planning.

581-541A or B **Physical Therapy. Specialized Procedures.** (3 hours per week.) A seminar course providing the basic sciences to specialized procedures and revision of these advanced procedures on the basis of physiological principles and recent research.

581-632A **Physical Therapy. Management and Supervision.** (3 hours per week.)

5.2 Master of Science (Applied) in Physical Therapy

5.2.1 Entrance Requirements

Candidates must normally hold a B.Sc. Degree with a high second class standing and have had two years of clinical experience in Physical Therapy.

5.2.2 Length of Study

The program normally requires two academic years to complete. Upon recommendation by the Committee of Graduate Studies and Research and by the Department of Physical Therapy, this requirement may be reduced for exceptionally well qualified candidates.

5.2.3 Fees

Annual fees – $575.00.

5.2.4 Application

Application for admission to the Faculty of Graduate Studies and Research should be made to the Director of Graduate Program, School of Physical and Occupational Therapy, 3654 Drummond St., Montreal 109.

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*Note: Numbers refer to section, not page.

McGill University

SCHOOL OF SOCIAL WORK

Under the Administrative Jurisdiction of the Faculty of Graduate Studies and Research

1973-74

Wilson Hall
3506 University Street*
Montreal 112, Que., Canada
Telephone (514) 392-5040

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* The official McGill University mailing address is: McGill University, P.O. Box 6070, Montreal 101, Que.

Legal Deposit 1 73

CALENDAR FOR SESSION 1973-1974

1973

May 21, Monday	Summer session commences, "Special BSW" program
June 29, Friday	Summer session ends
September 3, Monday	Labour Day
September 6, Thursday	Registration of MSW and Advanced Diploma students
September 10, Monday	Lectures begin, MSW and Advanced Diploma
September 10, Monday	Registration of all BSW students
September 13, Thursday	General Assembly and Reception, all students, 3 p.m.
September 20, Thursday	Lectures begin BSW
September 21, Friday	Last day for registration in Faculty of Graduate Studies and Research
October 8, Monday	Thanksgiving. Lectures cancelled
October 12, Friday	Last day for change of courses, BSW
December 19, Wednesday	Last day of lectures and field practice for all students

1974

January 7, Monday	Lectures and field practice resume for MSW Field Practice resumes for BSW 2 and 3
January 21, Monday	Lectures resume, BSW
March 1, Friday	Mid-term holiday
April 19, Friday	Last day of lectures, all students
April 22, Monday	Lectures and field practice resume, Special BSW
June 28, Friday	Lectures and field practice end for Special BSW. Last day for submission of MSW research reports for Fall Convocation

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

Robert E. Bell, C.C., B.A., M.A. (U.B.C.), Ph.D., D.Sc.(U.N.B.), LL.D.(Tor.), F.R.S., F.R.S.C. — Principal and Vice-Chancellor

Eigil Pedersen, B.A. (SGWU), M.A., Ed.D. (Harvard) — Vice-Principal, (Academic)

Stanley B. Frost, B.D., M.Th.(London), D.Phil.(Marburg), D.D.(Vic., Tor.), D.Litt.(Mem.) — Vice-Principal (Administration and Professional Faculties)

W. F. Hitschfeld, B.A.Sc.(Tor.), Ph.D. — Dean, Faculty of Graduate Studies and Research

David E. Woodsworth, B.A., Diploma(Tor.), M.A.(Mich.), Ph.D.(Brandeis) — Director, School of Social Work

John H. Holton, B. Com. (Tor.) — Secretary of the Board of Governors

Allan C. McColl, D.F.C., B.Com., C.A. — Director of Finance

Colin M. McDougall, D.S.O., B.A. — Registrar

1.2 STAFF OF THE SCHOOL OF SOCIAL WORK

Marie Brisebois, B.Sc., M.A.(Mtl.) — Lecturer, Field Practice

Carole Christensen, B.A.(Howard), M.S.W.(Mich.) — Lecturer, Field Practice

Ben Zion Dalfen, B.A., M.S.W., Diploma in Advanced Practice — Assistant Professor of Social Work Youth and School Services

Patrick Deehy, B.A.(Durham), M.S.W., M.A., Ph.D.(Princeton) — Associate Professor of Social Work, Corrections, Social Environment

Norma Fetterly, B.A., Diploma(U.B.C.), M.S.W.(Tor.) — Lecturer, Field Practice

Dorothy Freeman, B.A., Diploma — Associate Professor of Social Work, Psychiatric Social Work

Marion Garmaise, B.A., Diploma(Tor.) M.S.W. — Lecturer, Field Practice

Sheila Goldbloom, A.B.(Mt. Holyoke), M.S.W. — Assistant Professor of Social Work, Community Organization

Irene Gordon, M.S.W. — Lecturer, Field Practice

Margaret Griffiths, B.A., Diploma(Tor.), M.A.(Chic.) — Associate Professor of Social Work, Child Welfare; Chairman, Admissions Committee and Co—ordinator of Field Instruction

Estelle Hopmeyer, B.A., M.S.W. — Assistant Professor Co—Ordinator B.S.W. Field Practice

Myer Katz, B.A., M.S.W., Ph.D.(Col.) — Professor of Social Work, Casework

Janet MacDonald, B.A.(Queen's), B.S.W., M.S.W.(U.B.C.) — Lecturer, Field Practice

Judith Magill, B.A., M.S.W. — Lecturer, Field Practice

Lotte Marcus, S.R.N., Cert. Mental Health (Lond. School of Econ.), M.S.W., Dipl. Advanced Practice (McGill), D.S.W.(Col.) — Associate Professor of Social Work Health and Disease

Frank McGilly, B.A.(St. Francis Xavier), Ph.D.(Pitt.) — Associate Professor of Social Work Social Welfare and Services

Eva Raby, B.A., M.Sc.(Econ. Lond.), M.L.S.(Simmons) — Librarian

Diane Reichertz, B.A., M.S.W. (Wisc.) — Lecturer

Verity M. Ross, B.Sc.(Col.), M.Sc., Ph.D. — Associate Professor of Social Work, Human Behaviour and Research

Tryna Rotholz, B.A., M.S.W. — Lecturer, Field Practice

Edward V. Shiner, B.A., M.S.W., Ed.D.(Col.) — Associate Professor of Social Work and Director of Research

Amy Shulman, B.A.(SGWU), M.S.W. — Lecturer, Field Practice

Lawrence Shulman, B.A.(N.Y.) M.S.W.(Col.) Ed.D.(Temple) — Associate Professor of Social Work, Group Work

Dorothy Sirota, Diploma (Tor.) — Assistant Professor

Carol Speirs, B.A.(SGWU), M.S.W. — Lecturer, Field Practice

Shirley Steele, B.A.(McMaster), B.S.W., M.S.W. — Assistant Professor

Mary Stevenson, B.A., Diploma(Tor.), M.S.W. — Associate Professor of Social Work, Family Welfare

Ruth Tannenbaum, B.A.(Bishops), M.S.W. — Assistant Professor

Elizabeth Urtnowski, B.A.(Swarthmore), M.S.W.(N.Y.) — Lecturer, Field Practice

David E. Woodsworth, B.A., Diploma(Tor.), M.A.(Mich.), Ph.D.(Brandeis) — Director of the School and Professor of Social Work

1.3 SESSIONAL LECTURERS 1972–73

ROBERT COOPER, M.A.
LEOPOLDO CHAGOYA, M.D.
MRS. SYDNEY DUDER, B.A., M.S.W.
LAWRENCE FELT, B.A. (Oberlin) Ph.D.(Northwestern)
EVA LESTER, M.D.(Athens)
J. B. LIGHTMAN, B.A., Jur. Doc.(Geo. Washington) M.S.S.(N.Y. State)
MRS. LANIE MELAMED, M.S.W.
JOHN SIGAL, Ph.D.
ALLAN SURKIS, Ph.D.

1.4 FIELD INSTRUCTORS (AGENCIES) 1972–73

MISS BEVERLY ABOSH, M.S.W.
MISS PHYLISS AMBER, M.S.W.
MRS. K. MARJORIE BEDOUKIAN, M.S.W.
MR. JOSEPH BERLETTANO, B.A.
MRS. BARBARA BOBROW, M.S.W.
MRS. MARGALITH BORENSTEIN, M.S.W.
MR. OMER BOUDREAU, M.S.W.
MISS ROSLYN BRAMBLE, M.S.W.
MR. J.P. CASSELL, M.S.W.
MRS. INGRID COOPER, M.S.W.
MRS. LANA DAVIS, M.S.W.
MRS. JACQUELINE DESROCHES, M.S.W.
MRS. RHETTA DLIN, M.S.W.
MR. WILLIAM E. DUNCAN, M.S.W.
MR. GERARD FELLERATH, M.S.W.
MR. ABRAHAM FERSTMAN, M.S.W.
MRS. ANNE FISH, M.S.W.
MR. M. GOLDSTEIN, M.S.W.
MRS. BARBARA GOMBERG, M.S.W.
MRS. ZELDA HARRIS, B.S.W.
MISS JANET HAWORTH, M.S.W.
MISS ANNETTE B. HEBB, M.S.W.
MR. ANANT VISHNU HERLEKAR, M.S.W.
MISS DAPHNE HORSHAM, M.S.W.
MR. ISAAC KATOFSKY, M.S.W.
MR. HARRY KOSANSKY, M.S.W.
MRS. ELENA KRUGER, M.S.W.
MISS AIMI KUURA, B.A.
MR. ARTHUR LANDA, M.S.W.
MRS. MARGARET MACDONALD, B.A.

MR. ARCHIE MACLEOD, M.S.W.
MISS RITA MARTEL, M.S.W.
MR. PETER A MARTIN, Dip. Soc. Sci.
MISS SHIRLEY NICHOLSON, Dip. S.S.W.
MR. H. NISSENSEN, M.S.W.
MRS. D. OEHMICHEN, M.S.W.
MISS RUTH PACKER, M.S.W.
MISS HUGUETTE PAIEMENT, Dip. S.S.
MISS J. PHILLIPSON, M.S.W.
MISS SHERRIE POPLACK, M.S.W.
MR. JACOB RABY, M.S.W.
MR. TOM RAYNOR, M.S.W.
MRS. NAOMI RICHER, M.S.W.
MISS ANITA RAE RUDKO, M.S.W.
MRS. JUDITH SANDYS, M.S.W.
MRS. SHIRLEY SCHIFF, M.S.W.
MRS. BETTE SCHON, M.S.W.
MRS. ELSIE SHRIAR, M.S.W.
MRS. R. SMALL, M.S.W.
MRS. BELLA SOOKMAN, M.S.W.
MR. PETER STATHOPOULOS, M.S.W.
MISS JANET SUTHERLAND, M.S.W.
MR. JOHN R. WALKER, M.S.W.
MRS. I. ANNETTE WERK, M.S.W.

2 CENTRES FOR FIELD INSTRUCTION

ALLAN MEMORIAL INSTITUTE OF PSYCHIATRY OF THE ROYAL VICTORIA HOSPITAL: Acting Director, Dr. M. Dongier; Asst. Director, Dept. of Social Service, Mrs. Pearl Leibovitch
CHILDREN'S PSYCHIATRIC CLINIC: Clinical Director, Dr. E.P. Lester

ALLIED JEWISH COMMUNITY SERVICES: Executive Director, Mr. M. Batshaw

CATHOLIC FAMILY AND CHILDREN'S SERVICES: Director, Mr. D. Coulson

CENTRE DE CONSULTATION MATRIMONIALE: Directeur Général, M.U. Desrosiers

CENTRE DE SANTE MENTALE: Directrice Exécutif, Mme Monique Robitaille-Martin

CHILDREN'S SERVICE CENTRE: Executive Director, Mrs. M. Gelinas

DAWSON COLLEGE: Director of Co-Curricular Activities, Mr. Bill Conrod

DEVONSHIRE SCHOOL: Principal, Mr. M. T. Craig

DOUGLAS HOSPITAL, Social Service Department: Director, Miss E. McLaughlin

FAMILY SERVICE ASSOCIATION: Executive Director, Mr. C.E.R. Thompson
Main Branch — Supervisor of Core Services, Mrs. Joan Bailin
District Office (Laval) — Supervisor, Mr. Jack Raby

FOYER ST. LAURENT: Directeur Général, M. François Guindon

GOLDEN AGE ASSOCIATION: Executive Director, Mrs. K. Kirshner

HEBERT SYMONDS SCHOOL: Principal, Miss Peggy Steele

HERZL HEALTH CENTRE: Executive Director, Mrs. S. Kantrowitz

INSTITUT DE REHABILITATION DE MONTREAL: Directrice du Service Social, Mme C. Janelle

HOPITAL STE. JEANNE D'ARC: Directeur de Service Social, Mr. J. Violette

JEWISH GENERAL HOSPITAL, Social Service Department: Director, Miss C. Allison

JEWISH IMMIGRANT AID SERVICES OF CANADA: Director, Dr. Joseph Kage

SCHOOL OF SOCIAL WORK

JOHN HOWARD SOCIETY: Executive Director, Mr. Stephen Cumas

LAKESHORE ASSOCIATION FOR RETARDED CITIZENS

LAKESHORE COMMUNITY SERVICES: Executive Director, Mr. L. Coupal

LORNE SCHOOL: Principal, Mr. Ewin Crabbe

McGILL CLINIC IN FORENSIC PSYCHIATRY: Director, Dr. B.M. Cormier

MENTAL HYGIENE INSTITUTE: Executive Director, Dr. Alastair MacLeod

MONTREAL CHILDREN'S HOSPITAL, Social Service Department: Director, Mrs. S.B. Johnston

McGILL UNIVERSITY-MONTREAL CHILDREN'S HOSPITAL LEARNING CLINIC: Director, Dr. Sam Rabinovitch

MONTREAL DAY NURSERY: Executive Director, Mrs. S. Schiff

MONTREAL GENERAL HOSPITAL, Social Service Department: Director, Miss Jessie Lawrence

PROTESTANT SCHOOL BOARD OF GREATER MONTREAL: Chief Social Worker, Mr. B. Brown

QUEEN ELIZABETH HOSPITAL, Social Services in Psychiatry: Director, Mrs. Judy Gellert

REDDY MEMORIAL HOSPITAL: Director, Social Service Dept., Dept. of Psychiatry, Mrs. B. Schon

RESIDENCE BERTHIAUME DU TREMBLAY: Directeur, M. Jean-Paul Ramsay

ROYAL VICTORIA HOSPITAL: Director, Social Service Dept. (Main) Miss L. MacFarlane
Director, Social Service Dept. (Women's Pavilion), Miss S. Goldfarb

SERVICES TO NEIGHBORHOODS AND YOUTH (Division of Federation of Catholic Community Services Inc.): Division Director, Mr. J.J. Berlettano

SOCIETE DE SERVICE SOCIAL AUX FAMILLES: Directeur Général, M. R. Prud'homme

SOUTH SHORE COMMUNITY SERVICE: Executive Director, Mr. John Walker

SUMMERHILL HOMES: Executive Director, Mr. Ernest Hirschbach

WESTHAVEN RECREATIONAL CENTRE

WESTMOUNT YOUTH CLINIC: Executive Director, Mrs. M. Bedoukian

YOUNG MEN'S AND YOUNG WOMEN'S HEBREW ASSOCIATION: Executive Director, Mr. Harry Kosansky

3 SCHOOL OF SOCIAL WORK

3.1 HISTORY AND PLACE IN THE UNIVERSITY

In 1918,McGill University founded a School for Social Workers which was discontinued in 1932. In 1933, with the approval and cooperation of the University, an independent school, offering a two–year program to university graduates and known as the Montreal School of Social Work, was established. In October 1945, the University resumed the function of social work education and the Montreal School of Social Work, by agreement of its Board of Trustees, became the McGill University School of Social Work. The final step in integrating the School into McGill University was taken in 1950, since which time the University has assumed complete responsibility for it.

The School is an integral part of McGill University and its students are able to participate fully in the varied life of a great university. It has its own building providing classroom accommodation, research laboratory, casework and group work observation rooms, students' common room, and a compact up-to-date social work library to which new books, documents, and pamphlets are added continually. Students may also use the McLennan Library, the Redpath Library, and other special libraries.

3.2 OBJECTIVES AND EDUCATIONAL PHILOSOPHY

The School of Social Work is a professional school whose primary objective is to prepare students for successful careers and for leadership in the field of social welfare. The goal is to educate students for practice not only in established and well structured services, but also in initiating and pioneering in new and less explored areas of welfare. Students are expected to acquire the necessary knowledge, values, attitudes and technical skills of professional practice. They are, in addition, helped to develop critical and experimental approaches in the hope that during their professional careers they may contribute to the improvement of practice skill and knowledge, and to the development of increasingly constructive and humane social policy and organization.

This School is a member of the Canadian Association of Schools of Social Work and of the Council on Social Work Education. Through its membership in these and other national and international organizations, the School is in close touch with significant developments in social work education on the North American continent, and throughout the world.

Until 1969–70, the School offered programs only at the graduate level, leading to the degree of Master of Social Work and the Diploma in Advanced Practice in Social Work. Conscious of a general need for more professionals in practice and for extension and strengthening of professional education, the School in 1969–70 initiated a Bachelor of Social Work degree program. This program now constitutes the first professional degree, preparing graduates for direct entry into practice, with general professional skill. It also forms a strong foundation for a specialized Master's degree.

The School does not select any special practice method or theory, but encourages first the establishment of general competence and from that base supports the choice of the individual student, of specialization in specific fields of practice.

3.3 ADMINISTRATION OF THE SCHOOL

The School of Social Work is administered under the authority of the Faculty of Graduate Studies and Research of McGill University. The Director of the School is directly responsible to the Dean of that Faculty. The graduate degree programs are authorized by the Graduate Faculty Council to which representatives of the School are elected. The B.S.W. program is authorized by the Faculty of Arts. Representatives of the School are appointed to the Faculty.

Internal administration of the School is under the general direction of the Director. Various administrative and curriculum committees, with representatives of students and of the teaching staff, are charged with development and administration of major aspects of the School's program.

3.4 THE SCHOOL AND THE MONTREAL COMMUNITY

Montreal, the largest and most cosmopolitan city of Canada, affords varied community resources in both the private and public social services. A bilingual community and the main port of entry for immigrants, it affords unique opportunities for the study of social problems.

The well–known teaching hospitals of the city; the four financial federations and two councils of social agencies; private family, child welfare, group work and community organization agencies; together with local administrative offices of Federal and Provincial welfare departments concerned with social security programs, offer a wide range of opportunities for consultation and research study.

The School receives the full and generous cooperation of local welfare organizations in the provision of facilities for supervised field practice.

4 GENERAL INFORMATION

4.1 DEGREES AND DIPLOMAS

Three degrees or diplomas may be earned at the School. The Bachelor of Social Work degree is awarded to students who successfully complete the degree program at the undergraduate level. Students holding the B.S.W. may be admitted to the Master of Social Work program.

The Diploma in Advanced Practice in Social Work is awarded to students who already hold the Master's degree and who successfully complete the requirements for this diploma.

4.2 ADMISSION REQUIREMENTS (1973–74)

4.2.1 BACHELOR OF SOCIAL WORK DEGREE

4.2.1.1 Educational Objectives

The Faculty of Arts, through the McGill University School of Social Work, offers an undergraduate program of professional studies in Social Work, leading to the Degree of Bachelor of Social Work (B.S.W.). The B.S.W. degree course has the following principal educational objectives:

1) To prepare students for professional practice in any one of a range of social

service positions. (Holding of the B.S.W. degree represents the point of admission into the Corporation of Professional Social Workers of the Province of Quebec and the Canadian Association of Social Workers.)

2) To prepare selected students for entry into more specialized professional studies at the graduate level.

4.2.1.2 Admission

Admission to the B.S.W. is open to two groups of applicants: a) those who have completed two years of collegiate or equivalent studies, including introductory courses in Sociology, Psychology and French, as recognized by the University Admissions Office, and b) those who hold a B.A. at a B level average, with substantial content in social and behavioural sciences. Both groups should also have had introductory courses in statistics.

Application for admission should be made at the University Admissions Office.

4.2.2 THE MASTER OF SOCIAL WORK

Students who have successfully completed the B.S.W., or the special B.S.W. following a B.A., may be admitted to the Master of Social Work program.

Because of the large number of possible candidates, it should be understood that *admission to the M.S.W. program is not guaranteed for any person simply by reason of satisfactory completion of the B.S.W.*

Applications by persons holding a B.A. should be made directly to the School of Social Work.

Application for admission at all levels must be made in advance of registration. Since enrolment is limited and the admissions policy is selective, prospective students are advised to apply by *March 15* in the year during which they desire to enter the School. A personal interview may be arranged. Application forms may be obtained from the School of Social Work, McGill University. *Applicants who are not McGill graduates must submit a certified copy of their academic record beyond high school.* Applications must be accompanied by a physician's certification that the applicant has been examined and is in good health.

Registration: Students in the School of Social Work must report to the School, 3506 University Street, as indicated in the School Calendar of Dates.

4.2.2.1 Students Transferring from Other Universities or Other Countries

A small number of students who have already completed the equivalent of the first year of the M.S.W. program will be considered for admission to the M.S.W. program in 1973–74.

4.2.3 DIPLOMA IN ADVANCED PRACTICE

4.2.3.1 Statement of Purpose

Students who have a Master's degree in Social Work from an accredited School of Social Work and three years of professional practice may be admitted to the program leading to a Diploma in Advanced Social Work Practice. This year of advanced study is designed to deepen understanding and develop further professional skill in *Marriage and Family Counselling, Rehabilitation or Corrections, Research, Welfare Policy, and Administration.*

4.2.3.2 Admission Requirements

Candidates for advanced study should be those whose previous academic and professional performance has been of a high order. More specifically:

1) The candidate should possess personality characteristics and a breadth of professional interest that give promise of professional leadership. He should show capacity for scholarship and independent study.

2) He should have completed the M.S.W. program, with superior standing at a recognized School of Social Work.

3) He should have had normally a minimum of three years of professional experience, following completion of his M.S.W. program, and should be able to supply independent reports of his professional competence.

4.3 STUDENT STANDING

1) M.S.W. AND ADVANCED DIPLOMA students are expected to obtain a second class standing (65%) in all courses, and an equivalent standing in Field Instruction.

2) Permission to write supplementary examinations or to repeat courses is granted only upon recommendation of the Committee on Standings.

3) All students are admitted on probation. A student may be asked to withdraw at any point if, after careful review of his progress, the Committee on Standings deems this to be advisable.

4) Students enrolled in a full program of courses in any term are normally expected to devote their full time to study. Any plan for part-time study must be approved by the student's adviser.

4.4 ACADEMIC CREDIT TRANSFER AGREEMENT

Students wishing to take courses for credit towards their McGill degree at either Sir George Williams University, Université de Montréal, or Université du Québec à Montréal should refer to the section entitled "Academic Credit Transfer Agreement" in the *General Announcement* for details.

4.5 FEES

The University reserves the right to make changes without notice in its published schedule of tuition and other fees if, in the opinion of the Board of Governors, circumstances so require.

4.5.1 TUITION FEES

a) Fee for required full time resident year $654.00
(includes Students' Society and Student Services fees)
In addition to the above, candidates for the M.S.W. or Diploma in Advanced Practice who are not registered full time are obliged to pay fees at the following rates:
Fee per full course $120.00
Fee per half course . . . . . $ 60.00

b) Students taking the equivalent of three or more full courses, but less than a full year, must pay in addition:
Student Service fees . . . . . $ 62.50

c) A candidate for the Master's degree, who has completed all course and residence requirements, but has not completed the research project, must register each year as a nonresident student and pay the sessional fee of . . . . . $ 15.00
Any student receiving research project supervision from a member of the staff will be considered to be in residence, must register for the session and pay a resident fee of $162.00

d) Late application fees . . . . . $ 5.00
Late registration fee . . . . . $ 10.00
Late payment fees (within 30 days) . . . . . $ 10.00
(after 30 days) . . . . . $ 25.00

The additional fee for a degree conferred *in absentia* is $5.00.

Each student should budget at least $50.00 for the purchase of necessary books and texts.

Fees herein stated do not cover expenses such as car fare to and from field work, and small miscellaneous items such as materials for group work skills.

4.5.2 REGULATIONS FOR PAYMENT OF FEES

1) Fees are due and payable at the Accounting Office within 10 days after registration. If paid by instalments the second instalment is due on January 13. A late fee is charged for payment after the specified dates.

2) Immediately after October 18, a list of students who have not paid their fees is sent to the Dean of the Faculty, who removes their names from the register of attendance. Such students cannot be re-admitted to any class until instructions have been received from the Chief Accountant that the fees have been paid.

4.6 BURSARIES, SCHOLARSHIPS AND LOANS

4.6.1 SCHOOL

Some sources exist for both loans and bursaries through the School. Inquiries may be made at the time of application for admission to the School. Since the School does not receive all the resources for bursary and/or loan purposes until late during the first term, students should endeavour to make other arrangements for their financial needs, whenever possible, prior to entering the School.

Usual funds available from the School include:

1) General Bursary Fund
2) Frances Anderson Memorial Bursary
3) Alumni Bursary
4) J.A. Klein Memorial Bursary

The School has access to a limited amount of funds for loans and bursaries, made available by individuals or private organizations. These funds are insufficient to meet all needs but may be used as supplements to other sources.

Inquiries concerning bursaries and loans should be made at the time of application for admission. Special request forms are available.

For the possible availability of direct University scholarships or bursaries inquiry may also be made to the Student Aid Office, F. Cyril James Building, McGill University.

4.6.2 FEDERAL

Under the Federal Welfare Grants program, a limited number of bursaries are available each year to students who commit themselves to enter employment in approved welfare programs. These bursaries are administered and partly financed by the various provinces (with the exception of Quebec which has not been participating in the plan). Application should be made to the Deputy Minister, Department of Welfare (or Department of Social Welfare) in the capital of the province where the applicant has legal residence.

The Federal Welfare Grants program also awards graduate scholarships based upon academic achievement. Application should be made to the Welfare Grants Division, Department of Health and Welfare, Ottawa, Ontario.

Overseas students should inquire of their governments concerning the availability of United Nations, Colombo Plan or their country's own study grants.

4.6.3 PROVINCIAL

Most provinces offer bursaries on condition that recipients accept employment in these provinces upon graduation. Information should be obtained from Provincial Departments of Welfare.

Quebec residents may apply before January 1 for educational bursaries for the following year. Application should be made to the following: Service des Bourses de Perfectionnement, Ministère de l'Education, Hôtel du Gouvernement, Québec, P.Q.

4.6.4 VOLUNTARY AGENCIES

Local or national voluntary agencies often offer bursaries similar to those of the provinces. Information may be obtained from the School.

5 CURRICULA

5.1 B.S.W. CURRICULUM

5.1.1 NORMAL B.S.W.

a) The normal B.S.W. comprises a combination, over the three years, of professional courses, supervised field practice and practice-related courses drawn principally from the social and psychological sciences.

b) The program is organized so that the proportion of professional content to social and psychological science content increases from year I to year III.

c) The B.S.W. degree will be awarded upon successful completion of 90 credits of study, distributed approximately as follows:

Social Work courses	33–39 credits
Field practice	15 credits

Other University courses (at least 24 to 30 credits of which will be selected from social and psychological science offerings) to a total of 36–42 credits.

d) The distribution of the 48–54 credits of Social Work content over the three years will be approximately as follows:

Year I – 9 credits
Year II – 18–21 credits
Year III – 21–24 credits

e) Students entering their University I year will enrol in Social Work 250A and Social Work 251B having a combined course value of 9 credits. The remaining 21 course credits will be taken elsewhere in the University with the approval of the Director of the School of Social Work.

f) Students entering B.S.W. II will, in consultation with advisors, enrol in Social Work courses having a total credit value of 18–21, normally including Social Work 455D and Social Work 456D in their registration. The remaining credits will be taken elsewhere in the University.

g) Students entering B.S.W. III will enrol in Social work courses having a total credit of 21 or 24, including 480D and at least two of the courses numbered 472A through 479B. The remaining 6 to 9 credits will be taken elsewhere in the University.

5.1.2 SPECIAL B.S.W.

The Special B.S.W. will be offered in three time blocks: a pre-summer session of 6 weeks, May-June, one regular academic year, and a summer session of 12 weeks, April-May-June. Students in this program will take at least 48 credits, including courses in social work practice, field practice, and policy. Required courses are Social Work 250A, 251B, 352B, 455D and 456D, 458B, 480D, and at least two of the courses numbered 472A through 479B. The remaining 12 credits will be selected from other courses offered at the B.S.W. level.

5.2 M.S.W. CURRICULUM

The M.S.W. degree represents a second level of professional study, built upon clusters of sub-group programs that isolate areas of specialization through particular combinations of seminars, field practice, and research. Provision is made for the student to choose his own program by selecting 1) a field of practice in which he would develop expert knowledge, and 2) modes of intervention with which he would develop special competence. The time required will be approximately 39 weeks, plus allowance for study time and vacation, for a total of about ten months.

The term Field of Practice implies a concern with certain types of problems and populations, and therefore with certain kinds of service organizations or institutions. It may imply but does not limit the kinds of intervention employed to deal with the problem addressed. Academic courses, field practice, and independent study will be selected so as to permit a combination of specialized knowledge and generalizable skill.

5.2.1 OBJECTIVES

There are three principal educational objectives in the Master's program:

1) The student is expected to demonstrate a capacity for analytical and critical understanding of the social problem categories, population groups, organizational arrangements and social policy issues pertaining to the field of practice which he has selected.

2) The student will have the opportunity further to develop and demonstrate an advanced level of skill in a particular mode of practice.

3) Finally, the student will be expected to give evidence of an ability to initiate, develop and report on a piece of independent research on an identified practice issue.

5.2.2 FIELD OF PRACTICE

Fields of practice may include:

Child and Family Welfare
Marriage and Family Counselling
Health Services
a) Mental Health and Psychiatric Services
b) Physical Health and Rehabilitation
Community Change
Corrections
Youth and School Services

5.2.3 PLAN OF STUDY

Students will meet the following three requirements:

1) Academic courses totalling at least 8 half courses;
2) A practicum of approximately 75 days (525 hours);
3) Independent study and research culminating in a significant report.

5.2.4 SUMMARY OF REQUIREMENTS

Required of all students are:

1) The Field of Practice Seminar;
2) No fewer than 3 half courses in methods of practice;
3) No fewer than one half course in theory courses;
4) No fewer than two additional half course electives from either methods or theory courses;
5) The practicum;
6) Independent study and report.

5.3 DIPLOMA IN ADVANCED PRACTICE CURRICULUM

5.3.1 DIPLOMA REQUIREMENTS

5.3.1.1 Courses

The Diploma in Advanced Practice will be awarded when the student has completed a minimum of *four* full courses and passed a comprehensive written examination.

5.3.1.2 Time Limit

The time limit for fulfilment of the requirements for the Diploma shall in no case be more than *four* years from date of enrolment.

5.3.1.3 Candidacy

It is desirable that students signify their interest in candidacy for the Diploma *either* upon entering the Program (provided they have identified their area of specialization) *or* upon completion of at least one full course.

Students who are not in a position to signify their interest in candidacy at either of the aforementioned points may do so later in their program. However, under the latter circumstances, if a number of unrelated courses already have been completed, it may be necessary to complete other courses specific to the student's area of specialization.

Formal application for admission to candidacy for the Diploma should be made in writing to the Chairman of the Post-Master's Committee upon successful completion of at least one full course in a theoretical area.

Applications will be evaluated by this Committee on the basis of performance in courses already completed, demonstrated capacity for independent study at an advanced level and the recommendation of the student's advisor.

6 COURSES OF INSTRUCTION

6.1 B.S.W. COURSES

407–250A SOCIAL WELFARE PROBLEMS, POLICIES AND ORGANIZATIONS. (4 Credits.) An examination of major social problems associated with life in large urban areas, and the social services, both public and private, which have been established to deal with such problems. Each student will be expected to examine in some depth the services associated with one selected problem area, and to make an assessment of their appropriateness and effectiveness in dealing with the problem. Specific problems to be examined include: urban poverty, child neglect, marital and family conflict, housing, illegitimacy. The course includes field observations and analysis of welfare organizations. Staff

407–251B INTRODUCTION TO SOCIAL WORK PRACTICE THEORY. (5 Credits.) An examination of helping or change techniques including the theoretical definitions of personal or social change from which they are derived. Planned change with individuals, families, small groups and communities. Topics will include: the nature of helping relationships, phases of the change process, motivational forces for change, resistance, client-systems, establishing change goals, evaluation of outcomes. One half day per week of field observation forms a part of the course requirement. Professor Katz

407–352B THE SOCIAL SERVICES IN CANADA. (3 Credits.) An introduction to the structure and programs of social services in Canada designed to familarize students with these services and to increase their ability to evaluate the functions of the services. Professor McGilly

407–451A,B CHILDREN'S NEEDS AND SOCIAL SERVICES. (3 Credits) The identification and analysis of the needs of children and their families. Consideration of the processes of selected social services, e.g. day care, visiting homemakers, foster family and institutional care, adoption, etc., designed to support, supplement and substitute for the family. Special emphasis will be placed on social legislation related to neglected, abused and dependent children. Members of the Staff

407–452A,B SOCIAL WELFARE ORGANIZATIONS AND DISADVANTAGED CLIENTELE. (3 Credits.) An examination of the structure of organizations serving the needs of socially disadvantaged persons or groups, and the processes through which such services are provided. Particular attention will be paid to the definition, screening and serving of disadvantaged clients as compared to those drawn from more "privileged" groups in society. Strategies for changing such organization will be explored. Professor Deehy

407–453A,B YOUTH AND YOUNG ADULTS: SOCIAL NEEDS AND SERVICES. (3 Credits.) The physical, psychological and social development of youth and young adults and the relationship of such development to demands of the social environment. Emphasis is on the effects of societal change on family roles, interpersonal relationships, educational and work achievement, youth's community role, social services for youth and young adults. **Professor Dalfen**

407–454A,B SOCIAL SERVICE IN THE HEALTH FIELD. (3 Credits.) Recommended for students expecting to proceed to further studies in Health Services. An examination of the relationship between illness and social conditions. Social planning, practice and research aspects of health care and the delivery of health services. An evaluation of current and developing professional roles of social workers in health teams, with particular emphasis on social rehabilition of the physically and mentally ill. **Professor Marcus**

407–455D SEMINAR IN SOCIAL WORK PRACTICE. (6 Credits.) This course will focus on principles of social work practice and on developing skill in working with individuals, families, small groups and communities. Attention will be given to the applicability of selected social and psychological science concepts in constructing models of social work intervention. Methods of practice will be analyzed from a range of settings, drawing upon student field experiences. **Members of the Staff**

407–456D FIELD PRACTICE. (6 Credits; two days per week September to mid–April; full–time practice during May.) Supervised educational experiences in social work practice designed to integrate practice with theoretical knowledge. Through field placements in university–affiliated teaching centres, students will work with individuals, families, groups and communities, receiving both individual and group instruction. **Field Instructional Staff**

407–457B LEGAL PROBLEMS OF THE POOR. (3 Credits.) A lecture–and–seminar course on law and social welfare, with the emphasis largely on the social–legal problems and rights of the poor, and methods of legal protection and redress available to them. Aspects of Canadian civil law and criminal law will be reviewed. Emphasis will be placed on the Quebec scene, with landlord–tenant, contract and debtor, matrimonial regimes, parental responsibility and social insurance. The total Canadian perspective will be considered in areas of divorce, unemployment insurance, arrest, and bail. **Robert M. Cooper**

407–458B THE IMPLEMENTATION OF WELFARE POLICY (3 Credits.) An analysis of policy issues which underlie selected social service programs; the administrative structure of such programs, their legislative base, their effectiveness and the role of professionals in the service delivery. Examples will be drawn from the current field experiences of students in the course. **Professor Woodsworth**

407–460A POVERTY AND SOCIAL POLICY (3 Credits.) An examination of the nature of poverty and of the characteristic problems of the poor, with comparative evaluation of alternative policies for resolution of the problems, including issues of maintenance of the incomes and social status of threatened populations. **Members of the Staff**

407–461B SEMINAR IN CORRECTIONS (3 Credits.) An examination of criminal behaviour in Canada and the U.S., and the correctional system designed to deal with such behaviour. The parts played by the police, judiciary, penal system and the probation and parole services will be discussed, together with the role of social work in the correctional process. **Professor Deehy**

407–470A INTRODUCTION TO SOCIAL WORK RESEARCH. (3 Credits) Introduction to the conceptual framework of scientific inquiry and its relationship to social work research and practice. Information on and experience with selected methods of research. Problem identification and formulation is stressed. **Professor Shiner**

407–472A SEMINAR ON FAMILY ASSESSMENT. (3 Credits.) An advanced seminar designed to integrate knowledge of human personality in social process. Emphasis will be upon the appraisal and assessment of patterns of reciprocity among members of disturbed and disorganized families. **Professor Freeman**

407–473B CASEWORK WITH INDIVIDUALS AND FAMILIES. (3 Credits.) Theory and practice of work with individuals and families under stress. Topics will include: categories of hazardous events; affective, behavioural and role disorganization; phases in the crisis cycle; techniques of crisis intervention and abatement. **Professor Katz**

407–474A METHODS OF COMMUNITY DEVELOPMENT, SOCIAL ACTION. (3 Credits.) The aim of this course is to develop an understanding of the organizing process and to enrich the student's repertoire of direct organizing skills. Emphasis is on organizational entities, community power and conflict, organizing strategies and their application, in the context of current issues in urban community development. **Professor Deehy**

407–475B COMMUNITY ORGANIZATION (3 Credits.) A continuation of methods of community development, and social action, with emphasis on the integration of community organization theory and practice. An examination of problems encountered in practice, current issues and trends in the conceptualization of community organization. **Professor Goldbloom**

407–476A SOCIAL WORK PRACTICE WITH GROUPS I (3 Credits.) Theory and practice of work with groups. Focus will be on group development theory and the skills of the worker as he strengthens group potential for mutual aid. Children and adult groups in a range of settings will be examined. **Professor Shulman**
Mrs. D. Reichertz

407–477B SOCIAL WORK PRACTICE WITH GROUPS II (3 Credits.) An advanced course in practice, with emphasis on comparative theories of groups. Prerequisite, Social Work Practice with Groups I. **Professor Shulman**

407–478A ACTIVITY GROUP METHODS (3 Credits) Theory and practice of the use of activity in work with groups. An analysis of a range of mediums through which group members provide mutual aid. An exploration of theoretical models of the role of the worker. **Mrs. Melamed**

407–479B SEMINAR IN INTEGRATION OF PRACTICE METHODS (3 Credits.) Discussion seminar in which attention will be given to a range of beginning theoretical attempts to define an integrated method. Emphasis will be placed on the examination of existing practice models; the problems entailed in creating a common model which allows for a differential application, and a study of the central requirements for a functional statement of practice. **Professor Katz**

407–480D FIELD INSTRUCTION (6 credits.) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the selected field. Individual and group instruction. **Field Instructional Staff**

6.2 M.S.W. COURSES

407–602 SOCIAL VALUES AND SOCIAL POLICY. (Half course.) Analysis of value assumptions underlying social welfare policies. An examination in depth of selected major social welfare issues, with particular atention to the value assumptions and their implications for the modification of policy. **Professor Woodsworth**

407–603 THE ECONOMICS AND POLITICS OF SOCIAL WELFARE. (Half course.) This course is designed to acquaint the student with the concepts and methods

of economic analysis of welfare problems and policies and with the political context in which welfare programs are developed and administered.
Professor McGilly

407–604 SEMINAR IN INTERNATIONAL SOCIAL WORK. (Half course.) A course designed for students from countries other than Canada and the United States. Discussion based upon intensive study and reports on problems in selected countries. Particular emphasis is placed on identifying major social problems, understanding the social forces bearing on those problems and considering appropriate professional approaches to aid in their solution. **Professor Lightman**

407–605 POVERTY AND SOCIAL POLICY. (Half course.) An examination of the nature of poverty and of the characteristic problems of the poor, with comparative evaluation of alternative policies for resolution of the problems, including issues of maintenance of the incomes and social status of threatened populations. **Members of the Staff**

407–606 CHILDREN'S NEEDS, PROBLEMS, RESOURCES. (Half course.) A study in depth of the needs of children and the related problems, with consideration of relevant treatment modalities and community resources for problem solution.
Members of the Staff

407–607 SOCIAL SERVICES IN THE SCHOOL SYSTEM. (Half course.) An examination of public schools as community institutions with emphasis on possible roles of the social workers in relation to pupils, parents, teachers, and administration. **Professor Dalfen**

407–608 ADVANCED SEMINAR IN CORRECTIONS. (Half course.) A critical analysis of selected correctional programs, in terms of their underlying theoretical base and their effectiveness in modifying criminal behaviour. **Professor Deehy**

407–609 SEMINAR ON HEALTH ISSUES. (Half course.) A tutorial requiring students to study in some depth a circumscribed area of their interest. Focus may be on theories of causation, comparative approaches to treatment, variations in service delivery and others. Selected guest lecturers may be invited and interdisciplinary discussions arranged. **Professor Marcus**

407–612 THEORIES OF CRIMINAL BEHAVIOUR. (Half course.) An examination of selected theories of criminal behaviour and their implications for social work intervention. **Professor Deehy**

407–613 COMPARATIVE APPROACHES TO PSYCHOPATHOLOGY. (Half course.) A examination of attitudes and responses to emotional disturbances and breakdown of individuals in contemporary society. A discussion of the changing patterns of psychiatric services and the use of a variety of health professionals and community resources. Illustrations of treatment approaches whenever feasible. **Dr. Lester**

407–614 ADMINISTRATION. (Half course.) Introduction to the theory and practice of administration, with particular reference to social welfare programs. Administration as process and method related to institutional change. The administrative unit as a social system. **Professor McGilly**

407–615 CRITICAL STUDY OF RESEARCH IN SOCIAL WORK. (Half course.) Analysis and evaluation of social work research, and research of particular relevance to social work, from other disciplines. **Professor Shiner**

407–616 RESEARCH PROJECT SEMINAR. (Half course.) Group conference with staff and students to formulate and develop student research projects.
Members of the Staff

407–617 RESEARCH PROJECT. (Half course.) The major research undertaking of the student. The selection of a research topic, the design of the research, the collection and treatment of the data, the written report of the project.
Members of the Staff

407–618 INTRODUCTION TO SOCIAL WORK RESEARCH. (Half course.) Introduction to the conceptual framework of scientific inquiry and its relationship to social work research and practice. Information on and experience with selected methods of research. Problem identification and formulation is stressed.
Mrs. Duder

407–620 THE FIELD OF PRACTICE SEMINAR. (Half course.) The seminar will provide an opportunity for integration of knowledge, theory and skills drawn from the practicum and other courses, and for close examination of special characteristics of the field. Organization of the seminar will vary with the field of practice. All students are required to participate in the seminar in one field.
Members of the Staff

407–621 CASEWORK WITH INDIVIDUALS AND FAMILIES IN CRISIS. (Half course.) Theory and practice of work with individuals and families under stress. Topics will include: categories of hazardous events; affective, behavioural and role disorganization; phases in the crisis cycle; techniques of crisis intervention and abatement. Professor Katz

407–622 SEMINAR ON FAMILY DIAGNOSIS. (Half course.) An advanced seminar designed to integrate knowledge of human personality in social process. Emphasis will be upon the appraisal and assessment of patterns of reciprocity among members of disturbed and disorganized families. Professor Freeman

407–623 MARITAL AND FAMILY COUNSELLING. (Half course.) The application of selected concepts from current research and practice theory related to marriage and family–centred treatment. Modes of intervention in joint and multiple interviews will be illustrated by instructor's and student's own case material. A continuation of Seminar on Family Diagnosis. Professor Freeman

407–624 COMMUNITY ORGANIZATION AND SOCIAL ACTION (Half course.) The aim of this course is to develop an understanding of the organizing process at the grass-roots level. Emphasis is placed upon community power and conflict, the development of organizing strategies, and the application of such strategies in groups and movements dedicated to social change. Professor Deehy

407–625 COMMUNITY ORGANIZATION. (Half course.) A continuation of Community Organization and Social Action, with emphasis on the integration of community organization theory and practice. An examination of problems encountered in practice, current issues and trends in the conceptualization of community organization. Professor Goldbloom

407–626 SOCIAL WORK PRACTICE WITH GROUPS I. (Half course.) Theory and practice of work with groups. Focus will be on group development theory and the skills of the worker as he strengthens group potential for mutual aid. Children and adult groups in a range of settings will be examined.. Professor Shulman

407–627 SOCIAL WORK PRACTICE WITH GROUPS II. (Half course) An advanced course in practice, with emphasis on comparative theories of groups. Prerequisite, Social Work Practice with Groups I. Professor Shulman

407–628 ACTIVITY GROUP METHODS. (Half course.) Theory and practice of the use of activity in work with groups. An analysis of a range of mediums through which group members provide mutual aid. An exploration of theoretical models of the role of the worker. Mrs. Melamed

407–629 PSYCHODRAMA. (Half course.) Study of the rationale and techniques of psychodrama application in role playing situations for individuals and groups; increase in sensitivity to clients. Didactic lectures with application in simulated situations. Dr. Surkis

407–630 SEMINAR IN INTEGRATION OF PRACTICE METHODS. (Half course.) Discussion seminar in which attention will be given to a range of beginning theoretical attempts to define an integrated method. Emphasis will be placed

on the examination of existing practice models; the problems entailed in creating a common model which allows for a differential application; and a study of the central requirements for a functional statement of practice.
Professor Katz

407–631 SEMINAR ON METHODS OF SUPERVISION. (Half course.) This seminar is designed for students who, on graduation, will assume immediate responsibility in a supervisory role. The seminar will deal with theories and models related to supervision of personnel engaged in different levels of practice and a variety of services with people. Professor Freeman

407–632 FIELD INSTRUCTION. (Full course.) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the selected field. Individual and group instruction..
Field Instructional Staff

6.3 DIPLOMA IN ADVANCED PRACTICE COURSES

407–700 SEMINAR IN SUPERVISION. (Half course.) A discussion of basic concepts implicit in supervision as an administrative and teaching process. Open to students who are having or who have had experience as supervisors.
Professor Freeman

407–701D COMPREHENSIVE EXAMINATION. Requires candidates for the Diploma to demonstrate ability to reorganize and integrate knowledge and perspectives over the total curriculum. Will include at least one section in the field of specialization, and one section in another area of the candidate's choice.

407–702B BEHAVIOURAL SCIENCE THEORY AND ITS RELATION TO SOCIAL WORK PRACTICE. (Half course.) Some of the major concepts of learning, role, field and communication theory will be systematically examined. Course content will include a critique of selected research in each of the above areas. Major consideration will be given to the relevance and application of behaviour theory to social work practice. Professor Ross

407–703 PRINCIPLES OF SMALL GROUP INTERACTION. (Half course.) A survey of theory, principles, and current research in small group dynamics, with emphasis on implications for the practice of social work. Professor Shulman

407–704 CRITICAL STUDY OF RESEARCH IN SOCIAL WORK. (Half course.) Analysis and evaluation of social work research, and research of particular relevance to social work from other disciplines. Professor Shiner

407–705 INDIVIDUAL RESEARCH STUDIES IN SOCIAL WORK. (Half course.) Tutorials on selected research problems. Professor Shiner

407–706 ADVANCED PRACTICE SEMINAR IN MARRIAGE AND FAMILY COUNSELLING. (Full course.) A course emphasizing family diagnosis during first term. Theoretical presentations related to student's case material. Emphasis on: Evaluation of marital conflict, differential treatment methods, the role of the psychiatric consultant, the appropriate use of short–term counselling, individual and family interviews, group counselling with married and engaged couples. Professor Freeman

407–707 ADVANCED PRACTICE SEMINAR IN REHABILITATION. (Full course.) In the first term, emphasis is placed on the bio–psychological and socio–cultural aspects of health and disease. During the second term, particular attention will be given to the application of theory from various disciplines to the prevention, treatment, and rehabilitation aspects of chronic and disabling illness. Consideration also will be given to the impact of disability on individuals, families and communities and to the actual and potential role of social work in this field.
Professor Marcus

407–708 SEMINAR IN ADVANCED RESEARCH METHODOLOGY. (Full course.) Study of contemporary theoretical and methodological approaches to social work research with special focus on design, measurement and analysis. A research project on a social work practice problem is central to the course.
Professor Shiner

407–709 FIELD PRACTICE. (Full course.) Minimum of 300 hours of supervised practice in marriage and family counselling, rehabilitation or corrections, research, or welfare administration. Members of the Staff

407–710 ADVANCED READINGS IN SOCIAL SCIENCE. (Half course.) Under special circumstances, and on recommendation of the student's adviser, arrangement will be made for a special tutorial course, involving readings and assignments.
Members of the Staff

407–711 SOCIAL WORK IN SOCIOLOGICAL PERSPECTIVE. (Half course.) The main defining features of social work and their interconnections are to be studied in the context of the sociology of occupations. Through comparison of several fields of work this course will seek to identify some of the characteristics of professionalization of occupations with particular attention to the helping professions. Professor Deehy

407–712 PRINCIPLES OF REHABILITATION. (Half course.) This course will consist of a critical discussion and analysis of the concept of rehabilitation, from a number of theoretical standpoints. Particular attention will be paid to theories of adult socialization and to the organizational structure of socializing agencies. The subject matter will provide a general framework from which to move into the courses specific either to rehabilitation or corrections. Professor Deehy

407–713 CONTEMPORARY SOCIAL PROBLEMS AND SOCIAL POLICY. (Half course.) A review of social policy as revealed in the social welfare structure in Canada. Critical appraisal of such policy in relation to selected social problems, with particular emphasis on criteria of adequacy and the social, economic and political factors involved in policy formation. Members of the Staff

407–714 ADVANCED PRACTICE SEMINAR IN CORRECTIONS. (Full course.) The first term consists of an intensive analysis of selected theories relating to crime and delinquency and an attempt to derive from these specific treatment programs applicable to social work intervention. The second term involves a critical analysis of selected correctional programs, particularly those in which social work plays a part in terms both of the theoretical underpinnings and their effectiveness. Professor Deehy

407–715 ADVANCED PRACTICE SEMINAR IN WELFARE ADMINISTRATION. (Full course.) Students will apply, through illustrations and discussion, concepts derived from various contributing disciplines and from social work practice, to particular problems in welfare administration. Topics will include problems, for example: of formal organizations with varying orientations, of professional workers in organizations, of organizational adaptation to complex environments, of representation of client and community interests in administration, of communications where interaction among participants are highly differentiated, of organizational goal–setting, performance evaluation, and resource allocation. Various theoretical models of organization behaviour will be presented, such as "social systems" learning models and conflict models.
Professors McGilly and Woodsworth

407–716A COMPARATIVE APPROACHES TO PERSONALITY. (Half course.) A systematic examination of selected analytic and non–analytic approaches to personality. Attention will be devoted to the major concepts and basic assumptions of Freud, Rank, Adler, Horney, Fromm, Sullivan, and Rogers. Emphasis will be placed upon the implications of the various personality theories for social work practice. Professor Katz

6.3.1 ELECTIVES

In certain instances, students may, where eligible, register for appropriate graduate courses offered in other departments of the University.

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*NOTE: Numbers refer to section, not page.

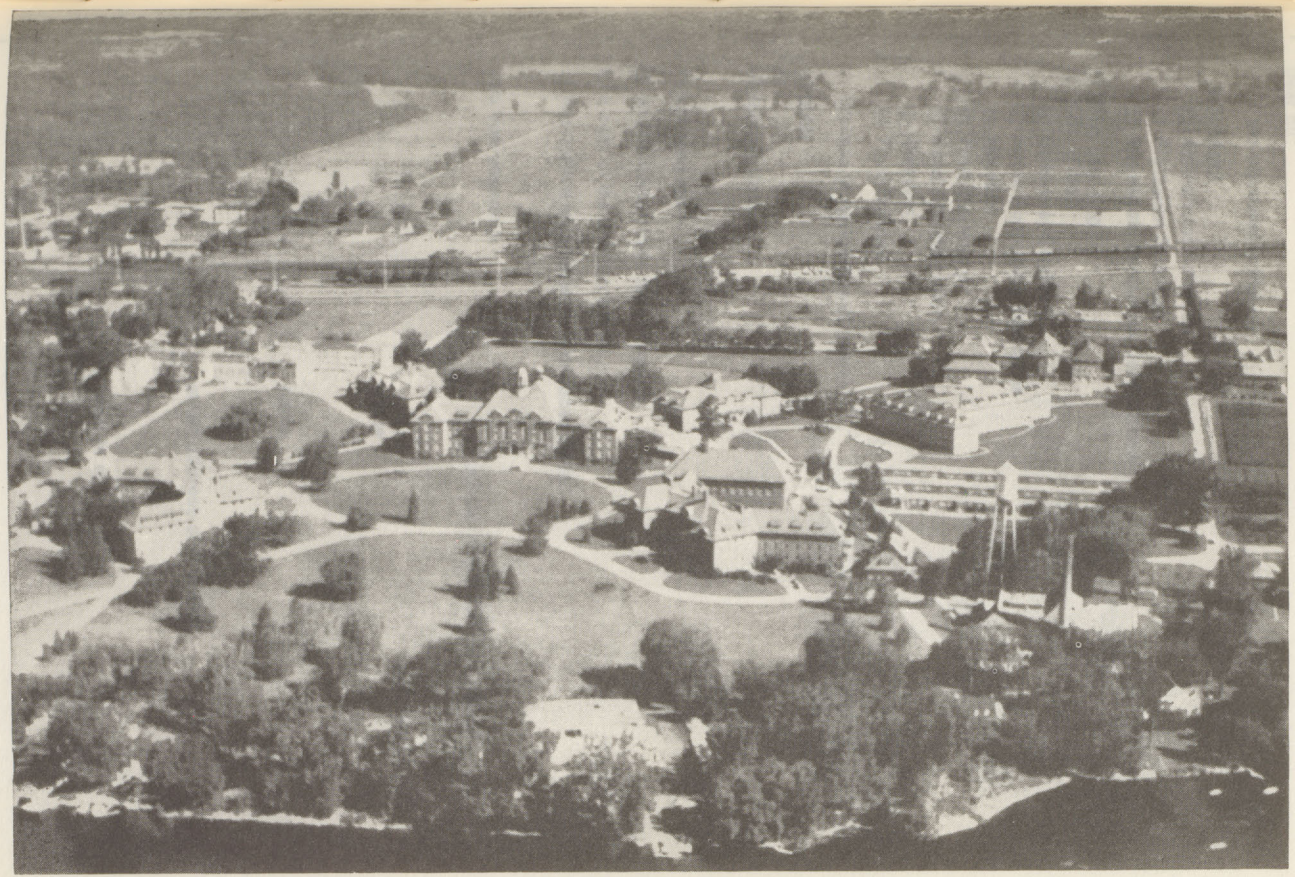
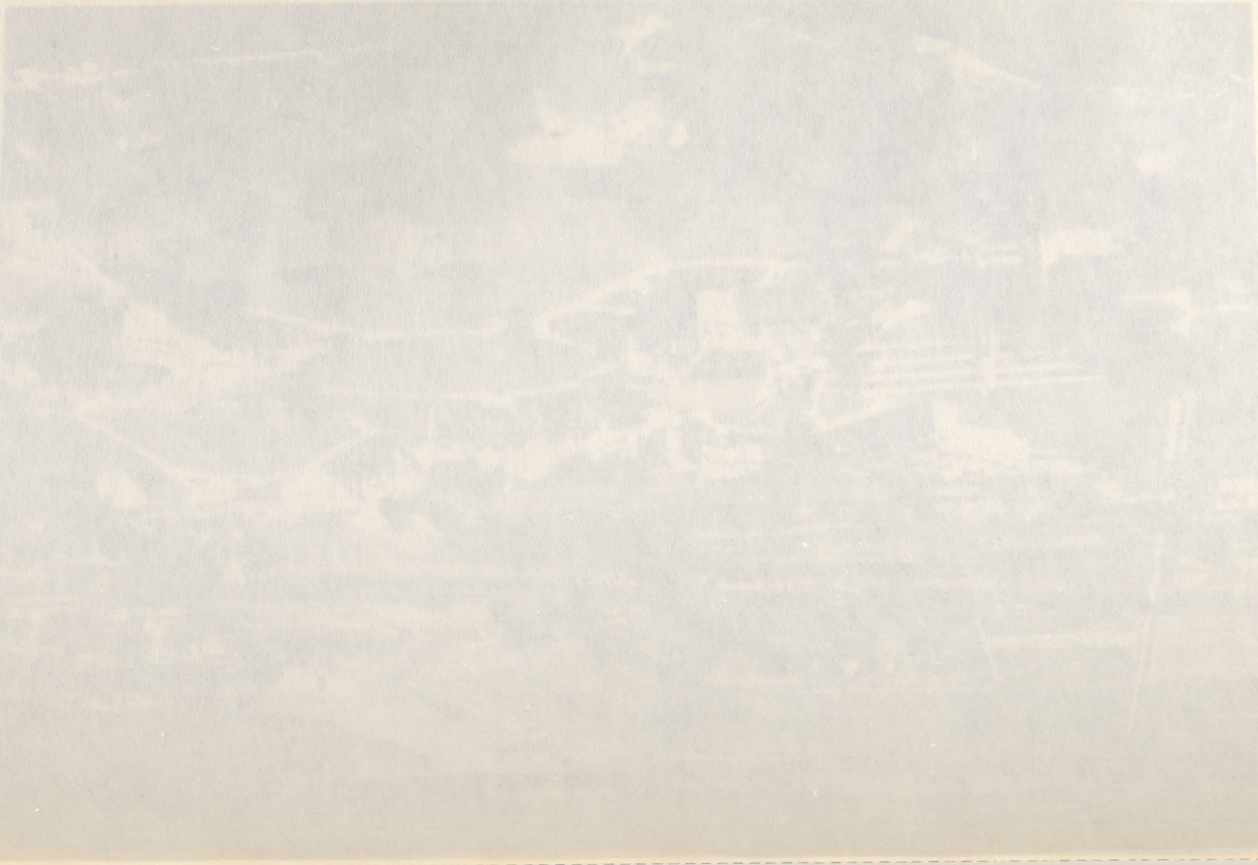


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MACDONALD COLLEGE



The Registrar
Macdonald College
Que.

Dear Sir:

I am interested in the —

B.Sc.(Agr.)
- ☐ Agricultural Sciences
- ☐ Biological Sciences
- ☐ Renewable Resources Development

☐ B.Sc. (Agr.Eng.)
☐ B.Sc. (F.Sc.)
- ☐ Consumer Services
- ☐ Home Economics Education
- ☐ Nutrition
- ☐ Food Chemistry
- ☐ Food Administration
- ☐ Dietetics
- ☐ Food Science

☐ Diploma in Agriculture (2 years)

program
at
Macdonald College

Please send me—

☐ an application form for admission

☐ a copy of the *Announcement*

☐ information on a career in the above fields

I am now attending .....
school, C.E.G.E.P. or College

..... and am in year .....
place

.....
name

.....
street address or P.O. Box

.....
town or city

Macdonald College

FACULTY OF AGRICULTURE SCHOOL OF FOOD SCIENCE 1973-74

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CALENDAR FOR SESSION 1973-74

1973

August 21, Tuesday	Supplemental examinations begin, Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
August 29, Wednesday	Students registering for Agronomy 340-350A report for class at 8:00 a.m. and for Soil Science 372-420A at 9:00 a.m.
September 4, Tuesday	Students registering for Renewable Resources Development 375-410B and Zoology 349-418A report for class at 9:00 a.m.
September 10, Monday	Registration of all new students, 9:00 a.m. to 12 noon. Afternoon Orientation Program required of all new students. Registration of all returning students in all years 1:30 to 4:00 p.m.
September 11, Tuesday	Lectures begin for all years in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
October 5, Friday	Last day for course changes for first term courses in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
October 6, Saturday to October 8, Monday	Thanksgiving Holiday Weekend. No Classes.
October 16, Tuesday	Scholastic Awards Banquet.
October 24, Wednesday to October 27, Saturday	Fall Fair and College Royal.
November 1, Thursday	Last day for dropping first term courses without penalty.
November 6, Tuesday	Fall convocation.
November 11, Sunday	Remembrance Day.
December 5, Wednesday	Last day of lectures in First term, Faculty of Agriculture, School of Food Sciences and Diploma in Agriculture.
December 10, Monday to December 19, Wednesday	First term examinations in Faculty of Agriculture, School of Food Science and Diploma in Agriculture programs.

1974

January 7, Monday	Second term begins in Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
January 30, Wednesday to February 2, Saturday	Winter Carnival.
February 6, Wednesday	Last day for course changes for second term courses.
February 10, Sunday	Macdonald College Founder's Day (Sir William C. Macdonald born February 10, 1831, died June 9, 1917).
March 1, Friday	Last day for dropping second term courses without penalty.
March 2, Saturday to March 5, Tuesday	Mid-term holiday.
April 9, Tuesday	Last day of lectures, Faculty of Agriculture, School of Food Science and Diploma in Agriculture.
April 12, Friday to April 15, Monday	Easter.
April 16, Tuesday to April 26, Thursday	Second term examinations in Faculty of Agriculture, School of Food Science and Diploma in Agriculture programs.
April 29, Monday to May 10, Friday	Surveying School of Department of Agricultural Engineering (336-214E).
June 8, Saturday	Convocation, Macdonald College Campus

1 THE COLLEGE

1.1 ADMINISTRATIVE OFFICERS, McGill

DONALD O. HEBB, B.A. (Dal.), M.A., Ph.D. (Harv.), D.Sc. (Chic., Wat., York, McM.), D.H.L. (Northeastern), LL.D. (Dal., Queen's, West. Ont.), F.R.S., F.R.S.C.
Chancellor

STUART M. FINLAYSON, B.Sc. — *Chairman of the Board of Governors*

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), LL.D. (Tor.), Ph.D., F.R.S.C., F.R.S.
Principal and Vice-Chancellor

EIGIL PEDERSEN, B.A. (SGWU), Ed.D. (Harv.), M.A. — *Vice-Principal (Academic)*

STANLEY B. FROST, B.D., M.Th. (Lond.), Dr.Phil. (Marburg), D.D. (Vic., Tor.), D.Litt. (Mem.) — *Vice-Principal (Administration and Professional Faculties)*

ALLAN C. McCOLL, D.F.C., B.Com., C.A. — *Director of Finance*

JOHN H. HOLTON, B.Com. (Tor.) — *Secretary of the Board of Governors*

COLIN M. McDOUGALL, D.S.O., B.A. — *Secretary of Senate and Registrar*

JOHN ARMOUR, A.A.C.C.A. — *Comptroller*

ROWAN C. COLEMAN, D.S.O., M.C., LL.B. (Dal.), B.A. — *Director, Admissions Office*

A. DOUGLAS ELLIOTT, M.M., B.Eng. — *Director of Physical Plant*

D. LORNE GALES, B.A., B.C.L. — *Executive Director of the Graduates' Society*

HARRY E. GRIFFITHS, M.A. (Middlebury), B.Com.
Director of Athletics, Physical Education and Recreation

N. DOUGLAS JOHNSTON, B.Com. — *Treasurer*

J. STANLEY KENNEDY, B.A., B.D. — *Director of Student Aid and Student Counselling*

RONALD G. KURANOFF — *Chief Accountant*

JOHN G. LOHRENZ, M.D. (Man.) — *Director, University Health Service*

PAUL M. MATTHEWS, B.A. (Ott.), M.Sc. (Fordham) — *Director of Personnel Services*

CHARLES E. NOEL, B.Com., C.A. — *Director of Business Operations*

ROBIN STRACHAN, B.A., M.A. (C.C. Cambridge)
Director, McGill-Queen's University Press

1.2 ADMINISTRATIVE OFFICERS, Macdonald College

A. CLARK BLACKWOOD, B.Sc., M.Sc. (Alta.), Ph.D. (Wisc.), F.R.S.C. — *Vice-Principal*

W. C. SHIPLEY, B.Sc.(Agr.), M.A. — *Secretary*

EDITH HUNTER — *Assistant Secretary*

JEAN DAVID, L.S.A. (Montr.), Ph.D. (Calif.) — *Student Adviser and Registrar*

MRS. MURIEL WRIGHT, B.A., B.Ed., (Sask.), B.L.S. — *Librarian*

B. ARMSTRONG, B.Sc., M.D.,C.M. — *Medical Officer*

MICHELINE CHEVRIER, B.A., M.A. (Montr.) — *Director of Stewart Hall*

GORDON BACHMAN, B.Sc. (Nebr.), M.Sc. (Wisc.), Ph.D. (Michigan State)
Director, Extension Department

KATHLEEN CLYNES — *Librarian, McLennan Travelling Library*

1.3 INSTRUCTIONAL STAFF

1.3.1 FACULTY OF AGRICULTURE

A. CLARK BLACKWOOD, B.Sc., M.Sc. (Alta.), Ph.D. (Wisc.), F.R.S.C.
Dean of the Faculty and Professor of Microbiology

JEAN DAVID, L.S.A. (Montr.), Ph.D. (Calif.)
Associate Dean of the Faculty and Associate Professor of Horticulture

1.3.1.1 Agricultural Chemistry

BRUCE E. BAKER, B.Sc. (Bishop's), D.Sc. (Laval)
Professor of Agricultural Chemistry and Chairman of the Department

PHOEBUS A. ANASTASSIADIS, B.Agr. (Athens), M.Ed. (Rutgers), Ph.D.
Professor of Agricultural Chemistry

R. H. COMMON, B.Sc., M.Agr. (Belf.), Ph.D., D.Sc. (Lond.), D.Sc. (Belf.), F.R.S.C., F.R.I.C., F.A.I.C. *Professor of Agricultural Chemistry*

G. O. HENNEBERRY, B.Sc. (Dal.), M.Sc. *Associate Professor of Agricultural Chemistry*

H. J. THOMAS BEVERIDGE, B.S.A., M.Sc., Ph.D. (U.B.C.)
Assistant Professor of Agricultural Chemistry

HANS J. HUECKEL, M.S. (M.I.T.), Ph.D. (U.C., Davis), B.Sc.
Assistant Professor of Agricultural Chemistry

1.3.1.2 Agricultural Economics

DAVID L. MacFARLANE, B.S.A., M.Sc. (Sask.), Ph.D. (Minn.)
Professor of Agricultural Economics and Chairman of the Department

GORDON BACHMAN, B.Sc. (Nebr.), M.Sc. (Wisc.), Ph.D. (Michigan State)
Assistant Professor of Agricultural Economics and Extension Specialist of the Extension Department

1.3.1.3 Agricultural Engineering

JOHN R. OGILVIE, B.Sc.(Agri.), M.S.A. (Tor.), Ph.D. (Purdue)
Associate Professor of Agricultural Engineering and Chairman of the Department

ROBERT S. BROUGHTON, B.S.A., B.A.Sc. (Tor.), S.M. (M.I.T.), Ph.D.
Associate Professor of Agricultural Engineering

M. ANWER S. MALIK, B.Sc. (Punjab), M.S. (Minn.), Ph.D. (Michigan State)
Assistant Professor of Agricultural Engineering

ALFRED MARQUIS, B.S.A., M.Sc. (Laval), Ph.D. (Purdue)
Assistant Professor of Agricultural Engineering

EDWARD McKYES, B.Eng., M.Eng., Ph.D.
Assistant Professor of Agricultural Engineering

ERIC R. NORRIS, B.S.A., M.S.A. (Tor.) *Assistant Professor of Agricultural Engineering*

1.3.1.4 Agricultural Physics

H. R. DOUGLAS, B.Sc. (Alta.), M.A. (Tor.), Ph.D.
Professor of Agricultural Physics and Chairman of the Department

W. ROWLES, B.Sc. (Sask.), M.Sc., Ph.D. *Emeritus Professor of Agricultural Physics*

NAYANA N. BARTHAKUR, B.Sc. (Gu.), M.Sc. (Allahabad), Ph.D. (Sask.)
Associate Professor of Agricultural Physics

M. A. FANOUS, B.Sc. (Cairo), M.S., Ph.D. (Okla. State)
Assistant Professor of Agricultural Physics

P. H. SCHUEPP, Dipl. Sc. Nat. (Zurich), Ph.D. (Tor.)
Assistant Professor of Agricultural Physics

1.3.1.5 Agronomy

HAROLD R. KLINCK, B.S.A. (Tor.), M.Sc., Ph.D.
Professor of Agronomy, Chairman of the Department and Secretary of Faculty

H. A. STEPPLER, B.S.A. (Man.), M.Sc., Ph.D. *Professor of Agronomy (on leave)*

GHISLAIN GENDRON, B.A., B.Sc. (Laval), M.S., Ph.D. (Wis.)
Assistant Professor of Agronomy

NORMAN C. LAWSON, B.Sc. (Glasgow), Dip. Agr. (Reading), M.Sc., Ph.D.
Assistant Professor of Agronomy

WALKER RILEY, B.S.A. (Tor.)
Assistant Professor of Agronomy and Extension Specialist in Agronomy

Animal Science

1.3.1.6

SHERMAN P. TOUCHBURN, B.S.A., M.S.A. (U.B.C.), Ph.D. (Ohio State)
Professor of Animal Science and Chairman of the Department

EARLE W. CRAMPTON, B.S. (Conn.), M.S. (Iowa), Ph.D. (Corn.), D.Sc. (Reading), F.R.S.C., F.C.I.C., F.A.I.C.
Emeritus Professor of Nutrition

N. NIKOLAICZUK, B.Sc., M.Sc. (Alta.), Ph.D. (Ohio State) *Professor of Animal Science*

ROBERT D. BAKER, B.S. (S.I.U.), Ph.D. (Ill.) *Associate Professor of Animal Science*

EUGENE DONEFER, B.S., M.S. (Corn.), Ph.D. *Associate Professor of Animal Science*

PETER Y. HAMILTON, B.Sc.(Agr.), M.Sc. (Maine) *Associate Professor of Animal Science*

J. E. MOXLEY, B.Sc.(Agr.), M.Sc., Ph.D. *Associate Professor of Animal Science*

ROGER B. BUCKLAND, B.Sc., M.Sc. (McGill), Ph.D. (Maryland)
Assistant Professor of Animal Science

THOMAS G. HARTSOCK, B.Sc., M.Sc., Ph.D. (Penn. State)
Assistant Professor of Animal Science

GERALD M. JONES, B.S. (Corn.), M.S. (Maine), Ph.D. (Penn. State)
Assistant Professor of Animal Science

PAUL C. LAGUE, B.A. (Montr.), B.S.A. (Laval), M.S. (Corn.), Ph.D. (Corn.)
Assistant Professor of Animal Science

BRYAN G. PROCTOR, D.V.M. (O.V.C.), M.Sc. *Sessional Lecturer of Animal Science*

English (Faculty of Arts)

1.3.1.7

ALLAN R. GODFREY, B.A. (Alta.) *Assistant Professor of English*

Entomology

1.3.1.8

FRANK O. MORRISON, B.A., B.Sc. in Agriculture, M.Sc. (Alta.), Ph.D.
Professor of Entomology and Chairman of the Department

E. MELVILLE DuPORTE, D.Sc. (Carl.), B.S.A., M.Sc., Ph.D.
Emeritus Professor of Entomology

D. KEITH McE. KEVAN, B.Sc. (Edin.), A.I.C.T.A. (Trin.), Ph.D. (Nott.), F.R.S.E., M.I. Biol.
Professor of Entomology

JOHN E. McFARLANE, M.A. (Sask.), Ph.D. (Ill.) *Professor of Entomology*

ROBIN K. STEWART, B.Sc., Ph.D. (Glas.) *Associate Professor of Entomology*

VERNON R. VICKERY, B.Sc.(Agr.), M.Sc.(Agr.), M.Sc., Ph.D.
Associate Professor of Entomology and Curator, Lyman Entomological Museum

STUART B. HILL, B.Sc. (Hon.), (Swansea), Ph.D. (Reading)
Assistant Professor of Entomology

FELICITY ALI KHAN (Mrs.), B.Sc. (Canterbury), Ph.D. *Lecturer of Entomology*

Genetics (Faculty of Science)

1.3.1.9

WILLIAM FREDERICK GRANT, M.A. (McM.), Ph.D. (Virginia), F.L.S.
Professor of Genetics (Faculty of Science)

Horticulture

1.3.1.10

CHARLES D. TAPER, M.S.A. (U.B.C.), Ph.D. (Man.)
Associate Professor of Horticulture and Chairman of the Department

JEAN DAVID, L.S.A. (Montr.), Ph.D. (Calif.)
Associate Professor of Horticulture and Associate Dean of the Faculty

BERNARD B. BIBLE, B.Sc. (Ohio State), M.S., Ph.D. (Michigan State)
Assistant Professor of Horticulture

LOUIS PERRON, B.L.A. (Corn.) *Sessional Lecturer of Horticulture*

SAMUEL WIGDOR, B.Sc., B.Sc.(Agr.), M.Sc. (Mich.) *Sessional Lecturer of Horticulture*

Microbiology

1.3.1.11

ROGER KNOWLES, B.Sc. (Birm.), Ph.D. (Lond.)
Professor of Microbiology and Chairman of the Department

A. CLARK BLACKWOOD, B.Sc., M.Sc. (Alta.), Ph.D. (Wis.), F.R.S.C.
Professor of Microbiology and Dean of the Faculty

ROBERT A. MacLEOD, B.A., M.A. (U.B.C.), Ph.D. (Wis.), F.R.S.C.
Professor of Microbiology

EDMUND S. IDZIAK, B.Sc.(Agr.), M.Sc., D.Sc. (Delft)
Associate Professor of Microbiology

IRVING W. DeVOE, B.Sc. (Aurora), Ph.D. (Oregon) *Assistant Professor of Microbiology*

JORDAN M. INGRAM, Ph.D. (Michigan State), B.Sc.(Agr.), M.Sc.
Assistant Professor of Microbiology

GRACE T. ROBERTSON (MRS.), B.A. (Hunter), M.Sc., Ph.D.
Sessional Lecturer of Microbiology

1.3.1.12 **Plant Pathology**

RALPH H. ESTEY, B.Ed. (N.B.), M.S. (Maine), D.I.C. (Imp. Coll.), B.Sc.(Agr.), Ph.D., F.L.S. *Professor of Plant Pathology and Chairman of the Department*

REAL LUCIEN PELLETIER, L.S.A. (Montr.), Ph.D. (Wis.), M.Sc.
Professor of Plant Pathology

W.E. SACKSTON, B.S.A. (Man.), Ph.D. (Minn.), M.Sc.
Professor of Plant Pathology (on leave)

JEAN F. PETERSON, B.A. (Grinnell), M.S., Ph.D. (Nebr.)
Assistant Professor of Plant Pathology

MURI A. VISWANATHAN, B.Sc.(Agr.) (Madras), A.I.A.R.I. (New Delhi), Ph.D.
Assistant Professor of Plant Pathology

DENNIS W. WOODLAND, B.A., M.A. (Walla Walla)
Assistant Professor of Plant Pathology and Curator, McGill University Herbarium

ELIZABETH PARNAS, B.Sc. (Liverpool), M.Sc.
Assistant Curator, McGill University Herbarium

1.3.1.13 **Renewable Resources**

ANGUS F. MacKENZIE, B.S.A., M.Sc. (Sask.), Ph.D. (Corn.)
Professor of Soil Science and Chairman of the Department

H. GEORGE DION, B.S.A. (Sask.), Ph.D. (Wis.), D.Sc. (Laval), F.A.I.C.
Professor of Soil Science (on leave)

BENNO P. WARKENTIN, B.S.A. (U.B.C.), M.S. (Wash.), Ph.D. (Corn.)
Professor of Soil Science

J. ROGER BIDER, B.Sc., M.Sc. (Montr.), Ph.D. (Montr.)
Associate Professor of Wildlife Biology

ARCHIBALD R. C. JONES, B.Sc. F. (Tor.), M.Sc. (Syr.)
Associate Professor of Woodland Resources

JAMES D. MacARTHUR, B.Sc. F. (U.N.B.)
Associate Professor of Woodland Resources and Curator, Morgan Arboretum

J. F. GERARD MILLETTE, B.Sc.(Agr.), Ph.D. (Penn. State)
Associate Professor of Soil Science

GORDON BACHMAN, B.Sc. (Nebr.), M.Sc. (Wis.), Ph.D. (Michigan State)
Assistant Professor of Agricultural Economics and Extension Specialist of the Extension Department

MICHELINE CHEVRIER, B.A., M.A. (Montr.) *Assistant Professor of Sociology*

RODGER TITMAN, M.Sc. (Bishop's), B.Sc. *Assistant Professor of Wildlife Biology*

JACQUELINE GEROLS (MRS.), B.Sc. Exp. (Aix-Marseilles), M.A. (Montreal)
Sessional Lecturer of French

MARTIN VAN LIEROP, B.Sc.(Agr.) *Extension Specialist and Lecturer*

1.3.2 **SCHOOL OF FOOD SCIENCE**

Director — HELEN R. NEILSON, M.B.E., B.H.S., M.Sc., P.Dt. *Professor of Food Science*

FLORENCE A. FARMER, B.H.S., M.Sc., Ph.D. *Associate Professor of Food Science*

HELEN L. MACONOCHIE (MRS. A. K.), M.A. (Tor.), P.Dt.
Associate Professor of Food Science

DIANE A. RAYMOND, B.Sc. (H.Ec.) (Man.), M.S. (Drexell), P.Dt.
Associate Professor of Food Science

CELIA L. FERGUSON, B.H.S., P.Dt. — *Assistant Professor of Food Science*

ELIZABETH MURPHY (MRS.), M.Ed. — *Lecturer in Clothing and Textiles*

VIVIAN H. SHIPLEY (MRS. W. C.), B.Sc. (H.Ec.), M.A. — *Lecturer of Food Science*

KATHARINE MARTIN (MRS. S. L. B.), B.H.S. — *Sessional Lecturer of Food Science*

1.4 MACDONALD COLLEGE

Macdonald College, which was founded and endowed by the late Sir William C. Macdonald, is incorporated with McGill University, and is situated twenty miles west of Montreal, at Ste. Anne de Bellevue, Que. It is composed of the Faculty of Agriculture, which includes the School of Food Science.

Ste. Anne de Bellevue, Que., is twenty miles west of Montreal, on the main lines of the Canadian National and Canadian Pacific Railways, and on provincial highways No. 2 and No. 20. Travellers by air book to the Montreal International Airport at Dorval, which is approximately ten miles east of the College. The Anglican Church of Canada, the United Church of Canada and the Roman Catholic Church all have churches in the town. Students of all religious denominations are free to enter Macdonald College. Branches of the Bank of Montreal and of the Banque Canadienne Nationale serve the community.

The College has its own post office and mail should be addressed simply Macdonald College, Que. The address for freight and express parcels, and for telegrams, is Macdonald College, Ste. Anne de Bellevue, Que.

1.4.1 FACULTY OF AGRICULTURE

The work of the Faculty falls into three main divisions: teaching, research, and extension in Agricultural Sciences, Biological Sciences and Renewable Resources Development. Teaching and research form the major part of their work. Extension work is undertaken by departments as the need or opportunity may arise.

1.4.2 SCHOOL OF FOOD SCIENCE

The School of Food Science is an administrative unit within the Faculty of Agriculture. The function of the School is teaching to provide the professional qualifications necessary for dietetics and food technology and to provide strong academic training in consumer education, home economics, nutrition, food biochemistry and food management.

1.4.3 THE INSTITUTE OF PARASITOLOGY

The Institute of Parasitology, attached to the Faculty of Graduate Studies and Research, is located at Macdonald College. Research on animal parasites and the instruction of graduate students are the main functions of this Institute.

1.4.4 THE LYMAN ENTOMOLOGICAL MUSEUM

Originally established in 1914 and formerly housed in the Redpath Museum, the Lyman Entomological Museum was moved to the Biology Building, Macdonald College, in 1962. It houses the largest University collection of insects in Canada, second only in size to the National Collection. The Museum has also an active graduate research program in association with the Department of Entomology. Study facilities are available, on request from the Curator, to all *bona fide* students of entomology.

2 GENERAL INFORMATION

2.1 FACILITIES

Sir William Macdonald planned so well for future needs that the facilities of Macdonald College for instruction in agriculture and food science are still provided almost entirely in the buildings constructed in 1905. The picturesque brick buildings and red-tile roofs of the Chemistry, Biology, Agriculture and Main Buildings, together with Stewart Laird and Brittain Halls (residences for women and men), and the well laid out grounds on the shore of Lac St. Louis, combine to provide a campus which is attractive and functional.

Laboratory and lecture rooms are exceptionally well supplied with modern and efficient teaching facilities, while the reference section of the Library and the research laboratories associated with the various science departments are well equipped to permit the vigorous investigation of problems connected with post-graduate studies.

The land associated with the College consists of approximately 1,600 acres, at the western end of the Island of Montreal, and is in Town of Ste. Anne de Bellevue, Robert Baldwin County. The campus proper consists of about 200 acres south of Routes 2-20, and contains the buildings and fields devoted to research in poultry science and horticulture. The College farm represents a wide variety of the soils of the Ottawa St. Lawrence Valley Lowland, with podsols, brown forest and dark-grey gleizolic (poorly drained) soils, including the Ste. Amable, St. Bernard, Rideau and Ste. Rosalie series. It has good examples of many breeds of livestock. The principal purpose of the farm is to provide facilities for teaching, demonstration, and applied research by the various departments of the faculty.

The Morgan Arboretum, established in 1945, has 540 acres of natural woodlands and plantations set up and operated as a model for integrated multiple-use forestry. It combines forest production with intensive recreational use in an urban region. The northern hardwood forest is used for research, teaching, and demonstration projects relating to forest resources and values. Groups of all the Canadian native trees and many useful and important exotics are also present. The Arboretum features a botanical trail, a bird sanctuary, twelve miles of wooded trails, a variety of forest ecosystems, soil and water conservation projects, forest operations such as reforestation, plantation management, timber harvesting and maple syrup production, and related forestry-wildlife ecological activities. An intensive nature interpretation program is offered for school children.

2.2 THE MACDONALD COLLEGE LIBRARY

The library, with a seating capacity for 360 persons, is located off the central hall of the Main Building. Reading and stack rooms have accommodation for about 120,000 volumes. The Library subscribes to 1,500 journals.

The choice of books is directed towards bringing together the best modern literature on subjects of the College curriculum.

The Walter M. Stewart Collection, purchased through the generosity of the late Mr. Walter M. Stewart, contains books of more general interest, including biography, history, travel, science and fiction.

2.3 EXTENSION DEPARTMENT

2.3.1 COMMUNITY PROGRAMS DIVISION

This division is responsible for College extension activities in rural communities by providing liaison between the College and those involved in agriculture, home manage-

ment, family living, resource development and environmental control. Through the organization of seminars and workshops in the country, through consultation with individuals and groups, the resources of the College and University are made available to those without daily access to the campus. In addition, radio items and special weekly newspaper columns provide a link between the campus and the community.

This division also coordinates and encourages the extension services of various departments of Macdonald College. These are represented by such activities as the Soil Testing Service, the Land Use Planning Service, the Feed Testing Service, the Dairy Herd Analysis Service and the Agricultural Engineering Consulting Service. Each of the College's departments welcomes requests for information on subjects relating to agriculture and food science.

2.3.2 EXTENSION FILM LIBRARY

The Extension Department operates a film library service for schools, community organizations and individuals. Advice with respect to program planning and the use of audio-visual aids with special emphasis on films is available from the Library. A rental fee is charged for films and other audio-visual aids.

2.3.3 EXTENSION COURSES

Several courses are offered in a wide variety of technical and popular subjects. These courses are generally offered in the evening during the regular academic year.

As well, several conferences, workshops and seminars are held each year at the College. The Department also cooperates with regional school boards and community schools in planning programs and assisting in adult night schools.

2.3.4 MACDONALD JOURNAL

The Journal is a monthly publication dealing with matters of interest to the residents of rural communities. Articles and reports by Macdonald College staff, the Quebec Department of Agriculture and Colonization, the Quebec Women's Institutes Inc. and other contributors keep its subscribers up to date.

2.3.5 COLLEGE TOURS

Visits to the College from individuals or groups with a common interest in the farm, the home, or the school, are always welcomed.

Groups of fifteen or more requiring meals and/or rooms are asked to give two weeks' advance notice and to confirm the numbers in the group not later than three days before arrival. All requests for visiting privileges should be addressed to the Extension Department, Macdonald College, Que., who will be pleased to quote rates for meals and rooms, if required.

2.4 STUDENT PLACEMENT SERVICE

The Canada Manpower Service, in cooperation with Macdonald College, has established a Student Placement and Career Counselling Office on the campus to bring together graduating students and potential employers. In addition to permanent employment, the Service also endeavours to assist both undergraduates and employers interested in summer employment and part-time work. The Placement Office operates on a year-round basis, and its services are available to both students now registered and graduates of earlier years.

2.5 REGISTRATION

Students are required to register at the times indicated in the calendar for the program and year in which they have been accepted, and before entering residence to obtain a residence card during registration. Registration at a later date is permitted only to

those who obtain the consent of the Dean or Director of the Faculty or School concerned.

All students entering for the first time are required to register in advance of upper classmen. This period is devoted to a program of orientation, in which efforts are made to familiarize them with their physical and cultural surroundings, and to acquaint them with the scope of the various fields of learning at the College. Attendance at all sessions of New Students Orientation is compulsory.

Upon registering students are required to sign the following declaration: "I hereby accept and submit myself to the rules and regulations of Macdonald College, and of the Faculty or School thereof in which I am registered, and to any amendments thereto which may be made while I am a student of the College, and I promise to observe the same."

Students are not permitted to enter any class until they have registered.

2.6 FEES

The College reserves the right to make changes without notice in its published scale of tuition, board and room, and other fees. Fees are not refundable except under special conditions as described below.

2.6.1 TUITION FEES

These fees include all the regular charges for registration, tuition, laboratories, libraries, health service*, student activities, etc.

Regular Undergraduates

B.Sc.(Agr.) Program	$525.00
B.Sc.(Agr.Eng.) Program	525.00
B.Sc.(F.Sc.) Program	525.00

Diploma in Agriculture

a) Sons or daughters of farmers of the Province of Quebec, the Ottawa Valley in Ontario and the Maritime Provinces:

1 — Students dependent on their parents are eligible for reduced fees if their parents can establish that their main source of income is from the farm ... 73.00

2 — Students who are financially independent of their parents are eligible for reduced fees as sons or daughters of farmers if they own farms themselves, are partners (to the extent of at least ⅓) in a farm enterprise, or have worked full-time as a paid farm worker for 12 consecutive months immediately preceding the date of application ... 73.00

b) All others ... 383.00

Limited Undergraduates

Per credit ... 25.00
(Minimum per session $150.00; maximum per session, B.Sc.(Agr.), B.Sc. (F.Sc.) $525.00; Diploma in Agriculture, $383.00.)

Partial Students

Per credit ... 25.00

*Foreign Students see p. 15 also.

2.6.2 FOREIGN STUDENTS HEALTH INSURANCE

Compulsory Health Insurance ... $ 78.00

2.6.3 SPECIAL FEES AND PENALTIES

Late registration (unless excused by the Dean or Director)	$ 25.00
Late registration after first day — per day	5.00
Late payment during first 30 days after registration	10.00

Late payment after thirty days	25.00
Caution deposit	50.00
Conferring degree *in absentia*	5.00
Duplicate diploma	10.00
Transcript of record	1.00
Re-reading examination paper	10.00
Supplemental examination, per paper	
— written at College	10.00
— written elsewhere	25.00

2.6.4 STUDENT ACTIVITY FEE

There are various student activities at the College, such as the athletic association, literary and debating society, publications, class societies and the student union which the students are expected to support. The affairs of these organizations are in the hands of the students themselves and their operations are financed from a student activity fee of $43.00 which is included in the tuition fee listed above. The student activity fee is distributed as follows: Students' Council activity fee $28.00 and the student union building $15.00.

Also included are the membership fees for the various undergraduate societies which are collected at the time of registration as follows:

Agricultural Undergraduate Society	$ 1.00
Home Economics Society	1.00

2.6.5 BOARD AND RESIDENCE

Board and residence are paid separately. The fees, per session, exclusive of the Christmas holidays are:*

Board (3 meals per day, 5 days per week exclusive of statutory holidays designated by the University) Students can buy individual meals on a cafeteria basis if they do not wish to pay the full Board fees.	$450.00
Room (double occupancy)	440.00

Students are not encouraged to remain in residence during the Christmas holidays. If, however, due to exceptional circumstances, special permission to remain in residence has been obtained from the Residence Business Office, the cost for room for this period will be $13.00 double or $15.00 single for a week or any part of a week.

2.6.5.1 Single Rooms

There are a few single rooms available in each residence at an additional cost of $60.00.

APPROXIMATE COST OF PROGRAMS PER SESSION

Course	Tuition	Board (optional)	Residence	Textbooks supplies, etc. (estimate)	Total
B.Sc.(Agr.)	$525.00	$450.00*	$440.00*	$125.00	$1,540.00*
B.Sc.(Agr.Eng.)	525.00	450.00*	440.00*	125.00	1,540.00*
B.Sc.(F.Sc.)	525.00	450.00*	440.00*	125.00	1,540.00*
Diploma in Agriculture					
Sons and daughters of farmers of Quebec, the Ottawa Valley in Ontario, the Maritime Provinces	73.00	450.00*	440.00*	75.00	1,038.00*
Others	383.00	450.00*	440.00*	75.00	1,348.00*

* Subject to change without notice.

SUNDRY

2.6.6 Books

2.6.6.1

The prescribed textbooks, and classroom and laboratory supplies, may be purchased at the College Book Shop — estimated minimum cost is $125.00.

Supplies

2.6.6.2

Materials and supplies required for classes in Textiles and Clothing are provided by the students concerned and purchased at the direction of the instructor.

Uniforms

2.6.6.3

Uniforms are required for food laboratories; students in the B.Sc.(F.Sc.) program will be advised of the uniform requirements on acceptance or promotion.

2.6.7 REGULATIONS CONCERNING PAYMENT, AND REMISSION, OF FEES

1. Fees for tuition and for board and residence are due and payable to the Cashier at the time of registration. A late fee of $10.00 is charged for payment during the first 30 days after registration and $25.00 thereafter.

2. The College does not issue bills for fees.

3. Fees may be paid in two instalments, one at the beginning of the session, and one on January 15 following provided that an application for deferred payment of fees is completed and submitted at the time of registration. Information on payment of fees is available from the Registrar's Office.

More extended terms of payment may be arranged, where necessary, with the permission of the Secretary. In special cases of hardship, application may be made for financial assistance. See section on Scholarships, Prizes, Bursaries and Loan Funds.

4. As soon as possible after the dates prescribed for the payment of fees indicated in 3. above, a list of the registered students whose accounts with the Secretary are in arrears will be sent to the Dean or Director of the Faculty or School concerned, on receipt of which the Dean or Director shall suspend these students from attendance; they will not be readmitted to classes until the account is settled, or a satisfactory arrangement is made with the Secretary.

5. Students who have fees or other accounts outstanding at the end of the session will not be entitled to receive their marks or to have them sent to third parties, until these accounts are paid.

6. A student who withdraws from the College during the course of the academic year must do so at the Registrar's Office and return his identity card. If in residence he must return his residence card and meal ticket if he has one to the Cashier's Office.

7. In the case of students who leave the College before the end of the academic year, but receive full credit for the year towards their degree, there shall be no refund of tuition fees.

8. In the case of students who leave during the academic year and do not receive credit beyond the period of their attendance, tuition fees shall be remitted on the basis that half of the annual fees shall be remitted to a student who leaves prior to the beginning of the second term.

9. No tuition fees shall be refunded for any term during which the student has attended classes, even though he leaves before the term has finished.

10. Residence fees are payable for the full academic year and will not be refunded, except in special circumstances.

11. The Dining Room portion of the residence fees is refundable in special circumstances to students who leave the College permanently during the session.

12. Avoidable breakage or damage to College property or equipment by a student is charged to him on receipt of a report from the chairman of the department concerned.

The Cashier's Office is open to receive payments from 9 a.m. to 12:30 p.m. and 2:00 p.m. to 4:30 p.m., Monday to Friday.

All cheques, money orders, etc., should be drawn to the order of "The Secretary, Macdonald College," and should be made payable in Canadian funds including bank charges.

2.7 RESIDENCE

Men students in residence live in Brittain Hall, named in honour of the late Dr. W. H. Brittain, Vice-principal of Macdonald College from 1935 to 1955. The residences for women are Stewart Hall, named in honour of the late Mr. and Mrs. Walter M. Stewart, long-time friends and benefactors of the College, and Laird Hall, named in honour of the late Dr. Sinclair Laird, Director of the School for Teachers from 1913 to 1949.

Each residence is under the control of a director who is appointed from the academic staff. All applications for residence and inquiries concerning the residences should be addressed to the Residence Business Office, Macdonald College, Que.

2.7.1 APPLICATION FOR RESIDENCE ACCOMMODATION — NEW STUDENTS

A form for applying for residence accommodation and detailed information about the residence are sent to prospective students when they are accepted in the Faculty of Agriculture or the School of Food Science. When the form is received from the College it must be completed and returned immediately to the Residence Business Office. A caution deposit of $50.00 (not part of fees) must accompany the application for accommodation. The College guarantees to refund the deposit if the applicant cancels the room reservation at least three weeks prior to the date of registration.

2.7.2 APPLICATION FOR RESIDENCE — RETURNING STUDENTS

Returning students in the upper years must reserve residence accommodation on the form available from the Residence Business Office. This must be submitted by June 30 together with the usual $50.00 deposit.

2.7.3 ROOM OCCUPANCY

Students will not be admitted to residence before the date set for registration. Students from foreign countries or students from a distance may be admitted early in exceptional circumstances. Permission must be requested by letter and a reply obtained in writing from the Residence Business Office before the student leaves home.

Students who return to write supplemental examinations will be admitted to residence on a specified date and must make application to the Residence Business Office on the form sent by the Registrar's Office with notice of the examination schedule.

Student officers and members of the football team may be admitted before the opening date of courses, if permission is granted by the Residence Business Office.

Students from a distance may remain in residence during the Christmas holidays, provided permission is granted by Residence Business Office.

Students must vacate their rooms at the end of the regular session. The residences are used in the summer for meetings, conferences and summer school and the rooms must also be available for cleaning and maintenance. Only under exceptional circumstances will a student be granted permission to remain in residence during the summer months. Exceptions may be made for students who are employed at the College. In all cases permission must be requested from the Residence Business Office.

2.7.4 RESIDENCE FEES

Residence fees cover only the regular periods when classes are in session. An additional fee is charged for the Christmas holiday period and for residence accommodation during the supplemental examination period in August.

2.7.5 VISITORS

Visitors are welcome at the College. Relatives and friends of students may stay overnight in any residence provided they apply to the Residence Business Office.

2.7.6 NON-RESIDENT STUDENTS

Students living at home or out of residence are subject to College discipline as outlined under CONDUCT AND DISCIPLINE. The Student Affairs Discipline Committee of the Students' Council is responsible for the maintenance of good order and discipline in all areas on the campus and at student sponsored activities away from the campus.

Non-resident students may not stay overnight in any residence without permission of the Residence Business Office. Common rooms are provided for non-resident students in the Centennial Student Centre. The athletic facilities (gymnasium and pool) in both the men's and women's residences are available to non-resident students at appropriate time.

Meals are available in the College dining room for non-resident students.

Lockers are available in the basement of the Student Centennial Centre for non-resident students. These may be arranged for at the Student Centennial Centre one week after registration.

2.7.7 STUDENT AUTOMOBILES

In view of the increasing problem of parking staff and student automobiles on the campus, students living in residence will not be permitted to drive automobiles on College property during the session. They must leave them parked in designated areas. Other students will be allowed to park automobiles on the campus provided they observe the parking regulations and other rules applicable to students' automobiles. Students are required to obtain a permit on registration day. Permits will not be issued to students who do not carry car insurance for public liability, property damage and personal injury.

2.8 EXTRACURRICULAR ACTIVITIES

The program of extracurricular activities is designed to complement the program of studies and to promote both fellowship and wider experiences for the student.

A wide program of athletics is sponsored by the Athletics Board for men and women at both the varsity and intramural levels, supervised by qualified instructors. There are facilities for track and field sports, football, hockey, basketball, volleyball, woodsmen, tennis, badminton, archery, aquatic sports, curling, and ice skating on Glenfinnan Rink.

The Macdonald College Students' Council sponsors a newspaper, *The Dram,* a Yearbook *Clan Macdonald,* a photography department, a Winter Carnival which is highlighted by a widely attended international woodsmen's competition and numerous other activities. Dances and informal get-togethers are features of student life with the Centennial Centre a favourite meeting place.

Macdonald College can also boast of a new Student Union Building. At the corner stone laying ceremony in October of 1967 it was fittingly named "Centennial Centre." The building includes many facilities for extracurricular activities, recreation and relaxation, including a lounge, snack bar, meeting and board rooms, book shop, publication offices, ball room, and areas set aside for table tennis, billiards, a bar area, and a discotheque. The Centennial Centre is a students' facility and students are active in all facets of planning and management of this attractive new focal point of campus life.

On Founder's Day, which is celebrated each year on February 10, a special dinner and a musical or dramatic program are provided through the generosity of Mr. and Mrs. David M. Stewart. The Memorial Assembly is another annual event, held to commemorate the sacrifices of Macdonald men and women in two World Wars.

2.9 UNIVERSITY HEALTH SERVICE

The University Health Service comprises a main clinical centre at 517 Pine Avenue West, and infirmaries at Royal Victoria College and Macdonald College. Equal importance is placed on the physical and mental health of students and the medical staff are appropriately qualified to deal with both aspects.

2.9.1 PRINCIPAL AIMS

1. To detect any disability in new students liable to interfere with their education or that of others.

2. To maintain and protect the health of students by all practicable means.

3. To provide treatment for minor illness and accidents, and professional help for students with emotional or psychological difficulties.

The Health Service cannot undertake the care of serious illness beyond initial diagnosis and emergency treatment. When necessary, the patient will be referred to a physician of his choice or to the public service of a hospital. The cost after referral is then the student's responsibility. A limited number of house visits by a nurse of the Health Service may be made to such students living away from home and confined to bed; should the illness be serious every effort will be made to notify the student's parents or guardian.

2.9.2 HEALTH REQUIREMENTS FOR NEW STUDENTS

All students entering the University for the first time (whether regular, limited or partial, and whether graduate or undergraduate) must present at the time of registration: (1) a medical report (preferably from their family physician); (2) a complete medical questionnaire, and (3) a medical certificate of vaccination against smallpox within the previous three years. The questionnaire and the form for the doctor's report will be sent to the student when he is notified that there is a place for him at the University.

An appointment will be made for all new students to be seen by a physician at the University Health Service as early as possible during their first academic year. At this interview the health of the student will be reviewed and if it is thought necessary, the student will be medically examined. The examination may include X-ray, and other appropriate laboratory or diagnostic tests. Re-examination may also be required in the interest of the student or of others attending the university.

2.9.3 PARTICIPATION IN ATHLETICS

A student wishing to participate in athletics in any academic year must first obtain a permit from the University Health Service. Permission will depend upon the initial medical report from the student's own physician, supplemented by such other medical examination as may be thought necessary in the Health Service. A student who has received medical attention for an illness or accident must be declared fit by the Health Service before he may again participate in athletics.

2.9.4 MEDICAL EXPENSES

The cost of medical examinations carried out at the Health Service and of medical care obtained through its general or mental health clinics is covered in part by University Funds. Residents of Quebec will be covered for services under Medicare. Non-Quebec Canadian students are strongly urged to obtain comprehensive health insurance in their home province. The cost of drugs prescribed by the Health Service will be borne by the student.

2.9.5 FOREIGN STUDENTS

All full-time foreign students (including landed immigrants during their first year at the University) must take out the Health Insurance policy which is available on a group basis at the cost of $78.00 per student per year. They are required to pay the annual premium with the first instalment of their fees. The University will forward these premium payments to the Insurance Company. In general, the policy provides for payments towards hospital, surgical, medical, diagnostic and other medical expenses. Students should make themselves aware of the limitations of such a policy.

2.10 CONDUCT AND DISCIPLINE

"The Vice-Principal of Macdonald College and its Dean of Students each have jurisdiction over all offences committed by students registered at Macdonald College and over all offences committed by students on or about Macdonald College. Directors of residences have jurisdiction over all offences committed in or about their respective residences." (McGill University — Code of Student Disciplinary Procedures, 1965).

MACDONALD COLLEGE

The Macdonald College practice has been to delegate the disciplinary function to the students in the first instance. The Students' Council has accepted this responsibility and has designated committees to act on its behalf. These committees are (1) the Student Affairs Disciplinary Committee for affairs outside of residence, (2) the Women's Residence Committee, (3) the Men's Residence Committee and (4) the Post Graduate Sub-committee on Discipline. The final committee of student appeal is the judicial wing of the Students' Council, namely (5) the Student Disciplinary Board. Serious breaches of discipline are referred to the University Committee on Student Discipline.

Students found guilty of improper conduct, violation of rules or wilful causing of damage to persons or property, shall be liable to discipline as set forth in the Code of Disciplinary Procedures approved by the Senate of McGill University in 1965, a copy of which is available on request from the Vice-Principal of Macdonald College. The Code specifies that discipline may include: imposition of fines or assessments for damage caused by individuals or groups; posting of security for good behaviour; reprimand; imposition of conduct probation; suspension or expulsion from classes or residence; expulsion from the University.

Any student who is unwilling to submit to the demands of college life, or whose work is definitely unsatisfactory, may be placed on probation, or may be required to withdraw from the College.

All students registered at Macdonald College are obliged to inform themselves of the rules and regulations of the College. A few of these are listed below but the main body of them will be found in the *Residence Handbook* or in other documents distributed at registration.

Possession or consumption of liquor by students is forbidden on the campus, except in authorized places and with special permission.

Initiation or hazing in any form is forbidden.

Unauthorized entrance to Residence or College buildings is forbidden. Violation of this rule is sufficient reason for expulsion.

Gambling is not permitted on College grounds.

Tampering with fire fighting equipment is forbidden.

Students are not permitted to bring firearms into the Residences nor is the use of firearms allowed on College property.

3 SCHOLARSHIPS, PRIZES, BURSARIES AND LOAN FUNDS

3.1 GENERAL

Students registered in the Faculty of Agriculture and the School of Food Science are eligible for Entrance and other Scholarships, Prizes, Bursaries and Loans which are open to all students at McGill University and are described in Section IIIA of the McGill University *Announcement of Scholarships, Bursaries, Prizes, Medals and Loan Funds* obtainable from The Registrar, McGill University, Montreal, or the Registrar, Macdonald College 800, Que. In addition, the following loans and special awards are available to students registered in Agriculture and Food Science.

3.2 LOANS — GENERAL INFORMATION

A loan is a form of financial aid to supplement a student's resources (where his earnings potential justifies the prospect of reasonably early repayment). An academic record of at least 60% is required as a condition of eligibility. In general, loans are available only to Canadian students or students with landed immigrant status, and as a general rule not to freshmen students.

Students applying for loans from funds available at the university are required first to apply for Government aid through their home province and otherwise demonstrate that they have exhausted all their possible sources of help, e.g. family, etc.

Students who have financial problems and are unable to pay the full amount of fees due at registration and who are not assured of sufficient funds to pay the second instalment due in January should apply for loan assistance before registration, in order to assure themselves of funds to complete the year. *In any case loan applications in the Faculty of Agriculture must be made before September 30, to the Registrar's Office.* Applications made after this date will not be considered, except in cases of emergency.

LOAN FUND OF THE MACDONALD BRANCH OF THE McGILL GRADUATES' SOCIETY. — Through the generosity of the graduates of Macdonald College loan funds have been made available for deserving students. Students who have at least 65% in their previous year's work will be eligible for loans of up to $500 per year.

The Graduates' Society Loan Funds bear interest at the rate of 4½%, and are limited to Canadian citizens. Applications are to be made to the Registrar's Office.

KIWANIS CLUB OF MONTREAL STUDENT LOAN FUND. — An interest-bearing loan fund for students in Agriculture at Macdonald College established to assist worthy students who are in need of financial help to further their education. Open to students contemplating entering the College as well as by students already enrolled. The loans are to be repaid, in whole or by instalments, as soon as the recipient is able to do so. Except in special cases the maximum loan is $500. Application for a Kiwanis Club loan is to be made to the Registrar's Office, Macdonald College.

3.3. BURSARIES

A bursary is a financial award which does not have to be repaid. It is made, on the basis of need, to a student whose academic achievement makes him worthy of support. Bursaries are not awarded to students with averages of less than 65%. In addition to bursaries open to all students at McGill University the following bursaries are open to Faculty of Agriculture and School of Food Science students. Apply to the Registrar's Office, Macdonald College, for information concerning bursaries marked with an asterisk.

*ALUMNI BURSARIES. — Two bursaries ($200 each) offered by the Macdonald Branch of the McGill Graduates' Society, one for a student in the B.Sc.(Agr.) program and one for a student in the B.Sc.(F.Sc.) program at the First or Second year levels.

ANNETTE S. HILL MEMORIAL BURSARIES. — Established in 1962 to assist young men of the Protestant faith and of good character from the Maritime Provinces or the Province of Ontario to obtain a college education. Apply to the McGill Student Aid Office or to the Registrar, Macdonald College.

*BETA SIGMA PHI BURSARY. — A Bursary of $500, to be awarded annually for three years, commencing in 1972, to a student in the School of Food Science who has satisfactorily completed First or Second year and is in need of financial assistance to continue in the program.

CHILDREN OF WAR DEAD (EDUCATION ASSISTANCE) ACT. — Under this Act fees and monthly allowances are provided for children of veterans whose death was attributable to military service. Inquiries should be directed to the nearest District Office of the Department of Veterans Affairs.

*HOTEL AND RESTAURANT SUPPLIERS ASSOCIATION BURSARY. — A Bursary of $200. to be awarded to a student in the School of Food Science who has satisfactorily completed First or Second year and is in need of financial assistance to continue in the program.

OTTAWA VALLEY GRADUATES' SOCIETY BURSARY of the value of $100, given through the Ottawa Valley Branch of the Graduates' Society, open only to bona fide residents of the territory of the Society.

*STE. ANNE DE BELLEVUE WOMEN'S UNIVERSITY CLUB BURSARY. — A Bursary of $300 is donated by the Ste. Anne de Bellevue Women's University Club to a woman student in any year of any program in the Faculty of Agriculture, the School of Food Science and the Faculty of Education, who is in good standing academically and needs financial assistance.

*JANET MORRISON ROBB BURSARY FOR WOMEN. — The income for one year from an endowment established by the late Hon. James A. Robb, formerly M.P. for Chateauguay-Huntingdon and Minister of Finance, Canada, in memory of his daughter, Janet Morrison Robb, wife of Hugh Harvie Donald.

Preference is given to women students resident in either of the counties of Chateauguay-Huntingdon, or Beauharnois, who are daughters of widows or widowers of limited or moderate means, or daughters of disabled Canadian soldiers who have seen active service.

FISHER TRUST FUND. — In the memory of the late Hon. Sydney A. Fisher, formerly M.P. for Brome County and Minister of Agriculture, Canada. Two grants, normally of $150 each, awarded to students in either the degree or the diploma programs in Agriculture. Under certain conditions, consideration will also be given to applicants in the School of Food Science. Available only to candidates whose parents and guardians have been domiciled in Brome County for at least twelve months prior to the registration date of the study year for which financial assistance is requested. These awards will be continued from term to term only upon favourable report from the Dean of the Faculty of Agriculture or the Director of the School of Food Science.

Application forms may be obtained from Mr. Stanley Quilliams, Secretary, Fisher Trust Fund Trustees, Foster, Que. Completed application forms should reach him by September 1.

THE COLONIZATION SOCIETY'S REGIONAL BURSARIES, available to graduates from the following schools: Gaspesia, New Carlisle; Alexander Galt, Lennoxville; Massey-Vanier, Cowansville; Chateauguay Valley, Ormstown; Richmond, Richmond; Pontiac, Shawville; Philemon Wright, Hull; Laurentian Lachute.

These bursaries are open to students who register in either the degree course or the diploma course in Agriculture. Preference will be given to students from farm families. Apply to the Registrar, Macdonald College, by September 1.

3.4 SCHOLARSHIPS

A scholarship is granted for distinguished academic standing. In addition to Entrance Scholarships open to all students at McGill University (see Section IIIA, McGill *Announcement of Scholarships, Bursaries, Prizes, Medals and Loan Funds)*, the following scholarships are open to students in the Faculty of Agriculture and the School of Food Science.

ELIZA M. JONES SCHOLARSHIPS IN AGRICULTURE AND FOOD SCIENCE. — Established by a bequest of the late F. P. Jones in memory of his mother.

Eleven scholarships of $500.00 each awarded yearly as follows: four scholarships to accompany the Macdonald and Stewart medals in first and second years; two scholarships to high ranking students entering from CEGEP or the equivalent, one for Agriculture, one for Food Science; two scholarships to students entering from the Nova Scotia Agricultural College at any level; and three scholarships to high ranking students at any level.

UNIVERSITY SCHOLARSHIPS. — After one year at the University, University Scholarships may be awarded by the University Scholarships Committee to students in any year of any undergraduate faculty for exceptionally distinguished work in the regular University examinations. No application is required.

All University Scholarships are renewable if in the opinion of the University Scholarships Committee, the holders maintain a sufficiently high academic standing.

University Scholarships carry an automatic award of $100. Where there is financial need, however, winners may apply for assistance. Winners from the Montreal area may, on proof of need, receive up to full tuition fees. Winners from other parts of Canada may receive up to full tuition fees, plus the cost of board and residence, if necessary. Students with need, on notification of winning a University Scholarship, should then apply to the Student Aid Office, McGill University.

3.4.1 OVERSEAS STUDENTS

Non-Canadian students are ineligible for entrance scholarships. Overseas students and non-Canadians from North America are expected to present evidence to immigration authorities that they have adequate funds for their studies in Canada. After completing one year of study at the University, students are eligible for scholarships awarded annually on the results of the sessional examinations.

COMMONWEALTH AND COLOMBO PLAN SCHOLARSHIPS. — These are rarely available for undergraduate studies, but undergraduates from countries where higher educational facilities are inadequate should inquire at their national departments of education.

FOREIGN GOVERNMENT SCHOLARSHIPS. — Several non-Canadian Governments have regional or federal government plans for sending selected students to study in Canada.

SUMMER WORK AND PART-TIME WORK. — When the general employment situation permits, immigration authorities may allow non-Canadians to take employment in the summer vacation if such work is related to their studies.

3.5 B.Sc.(F.Sc.) PROGRAM

3.5.1 MEDALS

STEWART MEDALS. — Named in recognition of the long and continued support and interest of the late Mr. and Mrs. Walter M. Stewart in the academic progress and welfare of Macdonald College students, and awarded for academic achievement to the students ranking highest in the First and Second years of the B.Sc.(F.Sc.) program.

GOVERNOR GENERAL'S MEDAL. — His Excellency the Governor General of Canada donates a medal to be awarded to the student in Food Science who ranks highest in the graduating class.

3.5.2 PRIZES

MARGARET A. MILTON MEMORIAL PRIZE. — A prize established in memory of Margaret Ann Milton, B.Sc. (H.Ec.) 1965, awarded annually to a student in the Second year of the B.Sc.(F.Sc.) program, based on the results of the final examinations.

NORAH E. HOLCOMB MEMORIAL PRIZE. — An entrance award of $100. given in memory of Mrs. Norah E. Holcomb, supervisor of Home Economics in Montreal. To be awarded to a student who has achieved academic excellence and enrols in the first year of the two-year program at Macdonald College leading to the B.Ed. degree in Home Economics.

MRS. ALFRED WATT MEMORIAL PRIZE. — Value $100. established by the Quebec Women's Institutes as a memorial to a distinguished Canadian, Mrs. Alfred Watt, M.B.E., who introduced the idea of Women's Institutes in England and Wales and was President of the Associated Country Women of the World from 1930 to 1947. Awarded to a student from rural Quebec in the First or Second year of the B.Sc.(F.Sc.) program who shows qualities of leadership and is worthy of financial encouragement to complete her program.

FREDERICA CAMPBELL MACFARLANE PRIZE. — $100, donated by the Quebec Women's Institute in memory of the late Frederica Campbell Macfarlane, graduate in Institution Administration, 1912, Superintendent of the Quebec Women's Institute from 1913 to 1919. Open only to students from a rural district of the Province of Quebec, and awarded on the results of the final examinations in any year of the B.Sc.(F.Sc.) program.

GARLAND PRIZE. — $100, donated by Garland Commercial Ranges Ltd. to a graduating student in the dietetics option planning to complete an internship and showing a genuine interest in a career in dietetics.

HARRISON PRIZE. — A prize established by an endowment under the will of the late Dr. F. C. Harrison, Principal of Macdonald College from 1910 until 1926; awarded for academic excellence to a student in the graduating year of the B.Sc.(F.Sc.) program.

CLASS OF 1953 BOOK PRIZE. — Graduates of the class of 1953 (Agriculture and Food Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the Second year curriculum. Awarded in the B.Sc.(Agr.) program in odd-numbered years; in the B.Sc.(F.Sc.) program in even-numbered years.

3.6 B.Sc.(Agr.) PROGRAM

3.6.1 MEDALS

MACDONALD MEDALS. — As a tribute to Sir William Macdonald, and in recognition of academic achievement, the late Mr. and Mrs. Walter M. Stewart of Montreal have donated two medals for annual competition, to be awarded to the students with the highest aggregate standing in the First and Second years respectively of the B.Sc.(Agr.) program.

GOVERNOR GENERAL's MEDAL. — His Excellency the Governor General of Canada donates a medal to be awarded to the student in Agriculture who ranks highest in the graduating class.

GRAY MEDAL. — A medal and a prize of $100, donated by Merck Frosst Laboratories, in honour of Prof. P. H. H. Gray, longtime Chairman of the Department of Microbiology, to be awarded annually to the student majoring in Microbiology who has demonstrated academic excellence and the most promise in the graduating year.

HARRISON MEDAL. — A medal and a prize of $100, donated by Merck Frosst Laboratories, in honour of Principal F. C. Harrison, first Chairman of the Department of Microbiology, to be awarded annually to the student majoring in Microbiology who has demonstrated academic excellence and the most promise in the second year.

DICKSON MEDAL and a prize of $40 donated by Rohm and Haas Company of Canada Limited, to the student standing highest in the second year of the Plant Pathology Option.

COULSON GOLD MEDAL and a prize of $60 donated by Rohm and Haas Company of Canada Limited, to the student standing highest in the final year of the Plant Pathology Option.

3.6.2 PRIZES

CHEMICAL INSTITUTE OF CANADA PRIZE. — A medal and a prize of $25 for the student in the Chemistry option with the highest standing at the end of the Second year.

EMILE A. LODS MEMORIAL PRIZE. — A prize of $100. given in memory of Emile A. Lods, M.S.A., D.Sc., F.A.I.C., and awarded to a student in the second year of the university program majoring in Agronomy.

LOCHHEAD MEMORIAL PRIZE. — A prize established by an endowment in memory of William Lochhead, B.A., M.Sc., the first Professor of Biology at Macdonald College. It is awarded to a student whose major interest is in entomology and who has emphasized entomological and directly related courses in the undergraduate program. If there is no suitable candidate, the Chairman of the Department of Entomology and Zoology may recommend a graduate student for this prize. The prize, in value equal to the revenue from the endowment, is to be in books, selected by the winner.

CLASS OF 1953 BOOK PRIZE. — Graduates of the class of 1953 (Agriculture and Household Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the Second year curriculum. The prize will be awarded in the B.Sc.(Agr.) program in odd-numbered years; in the B.Sc.(F.Sc.) program in even-numbered years.

CUTLER SHIELD. — The late Professor Garnet H. Cutler, the first lecturer in Cereal Husbandry, Macdonald College, has donated a bronze challenge shield which is held for one year by the student majoring in Agronomy with the highest aggregate in the final year.

CANADIAN SOCIETY OF ANIMAL PRODUCTION BOOK PRIZE. — Awarded to the student in the final year for academic excellence in Animal Science, Poultry Science, Nutrition or Food Science.

RAYMOND L. CONKLIN PRIZE. — A prize in the amount of the yearly interest from an endowment established by Raymond L. Conklin, M.D. To be awarded to a student in the first or second years who has achieved high academic standing.

3.6.3 SCHOLARSHIPS

HOLLIS J. M. FISKE SCHOLARSHIP. — Awarded to a student in the Third or Fourth years of the B.Sc.(Agr.) program for academic achievement on registration in the succeeding year of the course. Preference will be given to a Canadian.

RALSTON PURINA SCHOLARSHIP. — A scholarship of $500 to be awarded to a student in the Agricultural Engineering, Animal Science or Food Science options entering the senior year. In selecting the winning student, consideration will be given to high academic standing, a record demonstrating good citizenship, sincerity of purpose in agriculture as the chosen field and demonstrated financial need.

LYNDEN LAIRD LYSTER MEMORIAL AWARDS IN PARASITOLOGY. A Scholarship/Bursary award is available to an undergraduate student for excellence in Parasitology. Apply to the Director of the Institute of Parasitology.

3.7 DIPLOMA PROGRAM

3.7.1 MEDALS

MINISTER OF AGRICULTURE AND COLONIZATION MEDALS. — The Honourable Minister of Agriculture and Colonization of the Province of Quebec offers annually two bronze medals in connection with the Diploma Program, Second year Class, to be presented to the students ranking first in the Animal Science and in the Horticulture Groups respectively.

3.7.2 BURSARIES

QUEBEC LANDSCAPE GARDENERS AND NURSERYMEN'S ASSOCIATION BURSARY. — A bursary of $300 to be awarded to a student entering the Second Year of the Diploma Program, who is interested in pursing a career in ornamental horticultural work. Applicants must apply in writing to the Director of the Diploma Program before September 1, indicating study and career interests. The bursary will be awarded on academic performance, extracurricular activities, financial need and interest in a career in Horticulture.

QUEBEC WOMEN'S INSTITUTE BURSARY. — $100 for the student entering the Second year of the Diploma Program, who: (1) is a professional farmer's son (or daughter) from the Province of Quebec, (2) has spent at least one season (seed time to harvest) in his father's employ on the farm, 3) intends to return to his father's farm for at least one year on completion of his course or to manage his own farm), (4) and who, if more than one candidate meets the above three requirements, takes the highest proficiency in agricultural subjects in the First year or, if he is the only candidate, obtains at least class II standing in these subjects.

If no student can qualify for the above, this bursary will be made available as an entrance bursary to the First year of the Diploma program.

ELLIN BEIT-SPEYER BURSARY. — Miss Ellin Beit-Speyer, of Springmount Jersey Farm, Massawippi, Que., provides a bursary of $200 to a student in the First or Second year of the Diploma Course.

Participation in Club activities, farm background and need will be considered in making the award. Apply to the Registrar's Office before September 1.

3.8 GRADUATE SCHOLARSHIPS AND FELLOWSHIPS

Financial assistance is available for graduate students in the form of fellowships, teaching and research assistantships. Application is made to the Faculty of Graduate Studies and Research, McGill University, on forms obtained from that Faculty. The deadline for Fellowships and Scholarships is February 1.

Graduate students should refer to the McGill *Announcement of Scholarships, Bursaries, Prizes, Medals and Loan Funds,* available from the Registrar's Office, McGill University, or from the Registrar, Macdonald College 800, Quebec.

THE WALTER M. STEWART POSTGRADUATE SCHOLARSHIP IN AGRICULTURE. — Value $1,000, established to permit promising students from the Faculté d'Agriculture, Université Laval, to undertake postgraduate studies at Macdonald College. Apply to the Dean of the Faculty at Laval before May 1 each year. The scholarship will not be awarded to students who would, including this scholarship, be in receipt of scholarships, assistantships, etc. to a value of $2,000 or more per annum.

MACDONALD COLLEGE

DEPARTMENT OF EDUCATION POSTGRADUATE SCHOLARSHIPS. — Scholarships for predoctoral (postgraduate) studies and for work leading to higher degrees in artistic, scientific or technical training are awarded for one year at a time to residents in the Province of Quebec. The number of scholarships is determined by a jury. Candidates wishing to take part must obtain the application form from: Student Aid Service, Division of Higher Degrees, Department of Education, Parliament Buildings, Quebec, Que.

THE SIR VINCENT MEREDITH FELLOWSHIP IN AGRICULTURAL ECONOMICS. — The Fellowship valued at $2,500 per year is tenable for a two-year period. The fellow must qualify for admission to graduate work in Economics at the Ph.D. level as set out in the *Announcement of the Faculty of Graduate Studies and Research* of McGill University, and will be required to pursue research or thesis work on an approved subject in the area of Agricultural Economics. Limited teaching or other duties attach to the tenure of this Fellowship. Inquiries and applications should be addressed to the Department of Agricultural Economics, Macdonald College, prior to March 15.

OTHER GRADUATE FELLOWSHIPS. — A number of Graduate Fellowships are available to students entering the Faculty of Graduate Studies and Research. These have a fixed value of $1,200 for ten months plus tuition fees. Further particulars may be obtained from the Dean of the Faculty of Graduate Studies and Research, McGill University.

4 ACADEMIC PROGRAMS AND CURRICULA

4.1. PROGRAMS

The programs in the Faculty of Agriculture and the School of Food Science are normally of three years' duration following the completion of a 2 year post-secondary Collegial Program (CEGEP) in the Pure and Applied Sciences or the Health Sciences or its equivalent.

Courses	Pure and Applied Sciences (semesters)	Health Sciences (semesters)
English or French	4	4
Humanities	4	4
Mathematics	4	3
Physics	3	3
Chemistry	2	4
Biology	1	2
Elective	6	4

4.1.1 PROGRAMS IN AGRICULTURE

4.1.1.1 Bachelor of Science in Agriculture [B.Sc.(Agr.)]

A three-year program from the Diploma of Collegial Studies leading to professional qualification in agricultural science or in one of its related specialized branches in the Biological Sciences and Renewable Resources.

4.1.1.2 Bachelor of Science in Agricultural Engineering [B.Sc.(Agr.Eng.)]

A three-year program from the Diploma of Collegial studies in Pure and Applied Sciences leading to professional qualifications in Agricultural Engineering.

4.1.1.3 Diploma in Agriculture

A two-year program in practical agriculture designed to prepare students for careers in farming or work closely associated with agriculture at the production level.

4.1.1.4 Postgraduate Programs in Agricultural Science

These lead to the degrees of Master of Science and Doctor of Philosophy, with study and research in one or more of the departments of the Faculty or the School of Food Science. The program of studies and examinations are controlled by the Faculty of Graduate Studies and Research.

4.1.2 PROGRAMS IN FOOD SCIENCE

4.1.2.1 Bachelor of Science in Food Science [B.Sc.(F.Sc.)]

A three-year program from the Diploma of Collegial Studies leading to the professional qualifications necessary for dietetics, or food science as well as the following regions in the Food and Consumer Sciences area: Food Chemistry, Nutrition, Food management, Home economics and Consumer education.

NOTE: *Students with a CEGEP diploma in Social, Physical, or Health Science, may enter the Home Economics Education program which qualifies for the B.Ed. degree majoring in Home Economics.*

4.2 GENERAL ENTRANCE REQUIREMENTS

All candidates for admission must furnish medical certificate of physical health on forms supplied by the College. All students entering the University for the first time are required to present a medical certificate of vaccination against smallpox within the previous three years.

Applications for admission from Canadian students should, as a rule, be received before August 15 of the calendar year in which they are to be considered for acceptance.

4.2.1. NON-CANADIAN STUDENTS

Applications for admission from students whose homes are outside Canada must be received before March 1 of any year if they are to be considered for acceptance for that calendar year. No decision on these applications will be made by the Committee on Admissions before March 1, and the applicant will be notified whether or not his application is accepted as soon after that date as possible.

4.2.2 CLASSES OF STUDENTS

1. **Regular Undergraduates** are students with normal entrance qualifications and who are taking the regular work of their year towards the appropriate degree or diploma.
2. **Limited Undergradutes** are students with normal entrance qualifications but who, due to ill health or other circumstances, do not fit into the regular classification of years (First, Second, etc.) and who may be unable to complete their work in the normal length of time.
3. **Partial Students** are those not proceeding to a degree or diploma, including those doing a qualifying year for graduate work, or those earning credits for transfer to another Faculty or institution.

4.3 ACADEMIC STANDING — B.Sc.(Agr.), B.Sc.(Agr.Eng.) and B.Sc.(F.Sc.)

All students are required to give satisfactory evidence of mastery of the material of lecture and laboratory. Examinations are normally held at the end of each course but other methods of evaluation may also be used. Marks assigned for a course represent the standing of the student in all the work of the course.

Examinations may be written in either of the two official languages of Canada.

Upon payment of a fee of $10.00 a student may apply to the office of the Dean of the Faculty to have an examination re-read.

4.3.1 CREDIT SYSTEM

All courses carry a credit value. Courses are graded by letter. Ratings of 4, 3, 2, 1, and 0 are attached to the letter grades of A, B, C, D, and F, respectively. The letter grade F is a failure. The letter grade only appears on the transcript.

The grade points for each course are calculated by multiplying the credit value of the course by the student's earned grade rating. Standing in each semester will be determined on the basis of a grade point average (GPA) computed by dividing the sum of the grade points earned for the semester by the total course credits attempted.

The cumulative grade point average (CGPA) will be the grade point average calculated using the student's entire record in the program. A failed course will continue to be used in the calculation of the CPGA even after the course is repeated and passed, or if a supplemental examination is taken.

4.3.2 ACADEMIC CREDIT TRANSFER

Credit may be obtained for a course taken and passed at another university, upon approval of the instructor concerned. Normally, no grade will be recorded but the credit value established by the Faculty will be granted.

Full time students may, with the written permission of the Dean of the Faculty, register for courses with a total value of 6 credits in each semester at one or more of the following Montreal Universities: Sir George Williams University, Université de Montréal, and Université du Québec à Montréal. These courses, successfully completed according to the standards of the university giving the course, will be recognized for the purpose of the degree. Further details are found in the section entitled "Academic Credit Transfer Agreement" in the *General Announcement.*

4.3.3 COURSE LOAD

A normal course load is 15-18 credits per semester. No maximum course load is specified. A student who carries 24 or more credits per session (2 semesters) is considered to be a full-time student.

4.3.4 STANDING

The program for the degree will normally be completed in 3 academic years or 6 semesters. For the purposes of student classification, the years will be termed U1, U2 and U3.

Year 1 0-29 completed credits at registration
Year 2 30-59 completed credits at registration
Year 3 more than 59 completed credits.

A student's academic standing is based on his CGPA. CGPA is calculated on courses taken while he is registered as a regular undergraduate in the degree program. If his CGPA drops below 2.00, he is in academic difficulty.

Students in Academic difficulty.

1. When a student's CGPA (or SGPA in the first semester of his program) drops below 2.00, he is advised to withdraw. If he chooses to reregister, he is on *probation* until he raises his CGPA to 2.00.
2. A student on *probation* is advised to register for not more than 12 credits per semester. He is not permitted to be on *probation* for more than one semester unless he obtains a SGPA of 2.5 or higher.
3. A student who does not raise his CGPA to 2.00 (or obtain a SGPA of 2.5) while on *probation* is not permitted to register. He is required to withdraw from the degree program for at least one semester. If after this, the student wishes to reregister he must apply to the Committee on Academic Standing.

4.3.5 SUPPLEMENTAL EXAMINATIONS

A student who has failed a course may either reregister for and repeat the course, or he may apply to write one supplemental examination and will receive the grade earned. In the case of an elective course, the student may substitute another elective. Supplemental privileges or reregistration are available for students who wish to upgrade a course in which a grade of D has been obtained.

Supplemental examinations may be written at the August supplemental period or at the next regular final examination period, i.e. December for first term courses and April for second term courses. In addition, by arrangement with the instructor, an examination may be made available at the end of a term in which there is no regular end of term examination in that course.

A student may register only once in any course.

4.3.6 DEGREE REQUIREMENTS

To be eligible for a degree a student must have passed all required courses and also any specified electives recommended by his major professor. He must have accumulated at least 90 credits (B.Sc.(Agr.) and B.Sc.(F.Sc.)) or 96 credits (B.Sc.(Agr.Eng.)) and have a CGPA of at least 2.00.

4.3.7 ACADEMIC ADVISERS

Before registration, every student entering the Faculty must select a major program of study. He must consult with the Major professor of his chosen program for the selection and time-tabling of required and elective courses. The Major professor will continue to act as his adviser during his studies in the Faculty.

4.4 ATTENDANCE AND CONDUCT IN CLASSES

Matters of discipline connected with or arising from the general arrangement for

teaching are under the jurisdiction of the Dean of the Faculty or Director of the School concerned.

Students may be admonished by a professor or instructor for dishonest or improper conduct or may be reported to the Dean or Director concerned for disciplinary action. Parents or guardians may be advised of such conduct.

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students. Absences can only be excused on the ground of necessity or illness, of which proof may be required. Special attention is called to the fact that the completion of all laboratory work is obligatory and the opportunity to make up work missed can only be provided in the case of properly excused absences.

The Faculty has the power to refuse examinations to those students who persist in absenting themselves from classes without permission.

Students are requested not to make application for additional leave either before or after holiday periods, as such leaves can only be granted in case of illness or other exceptional circumstances.

4.5 CURRICULA

4.5.1 CURRICULA FOR THE B.Sc.(AGR.) IN AGRICULTURAL SCIENCES

Programs leading to professional qualification in agricultural science with specialization in either Agricultural Economics, Animal Science, Plant Science, Soil Science, General Agricultural Science or Agricultural Engineering [B.Sc.(Agr.Eng.)]. **Prof. R. S. Broughton, Coordinator**

4.5.1.1 Agricultural Economics Major

The curriculum leads to specialized studies in economics and/or commerce in the Faculty of Arts and in the Faculty of Management on the Montreal Campus. Graduates may enter private business at the marketing, production and management levels; the public service in Canada and in international agencies; teaching; self-employment; or graduate studies.

Prof. David L. MacFarlane, Major Professor

Required courses 22 credits

COURSE NUMBER	SUBJECT	CREDITS
334-231B	Economics of Agriculture	3
334-230B	Economics of Marketing	3
334-332A	Farm Production Economics	3
334-333B	Resource Economics	3
342-250A	Principles of Animal Science	2
330-211B	Principles of Plant Science	2
372-210A	Principles of Soil Science	3
360-201A, B	Statistical Methods	3
		22

Elective courses

Primary electives: 33 credits selected from an approved list in consultation with major professor, as follows:

Agricultural sciences: 9 credits, two course sequences in a departmental offering preferred.

Arts and Management Faculties: 24 credits.

Free electives: selected to round out the students program and meet the requirement of 90 credits for the degree.

4.5.1.2 Animal Science Major

The curriculum in Animal Science involves intensive training in both the basic and applied biological sciences as related to domestic animals. Concentration in either Animal Genetics, Nutrition or Physiology is possible within the Animal Science major. Graduates are professionally qualified and generally enter agricultural industries, mainly sales and marketing, government service (Provincial or Federal), extension, teaching or post-graduate studies. Students in the Animal Science major may, with appropriate selection of electives, apply for entrance to the Ontario Veterinary College.

Prof. R. B. Buckland, Major Professor

Required courses 65 credits

COURSE NUMBER	SUBJECT	CREDITS
372-210A	Principles of Soil Sciences	3
330-211B	Principles of Plant Science	2
342-250A	Principles of Animal Science	2
356-201A	Introduction to Genetics	3
332-232A	Biochemistry I	3
338-301B	Biothermodynamics	3
360-201A, B	Statistical Methods	3
344-202B	Cellular Biology	3
332-234B	Biochemistry II	3
342-330A	Fundamentals of Nutrition	3
342-321A	Mammalian Physiology	4
342-311B	Animal Pathology	3
352-300A	Communications — Extension Methods	3
342-301B	Principles of Animal Breeding	3
342-332B	Applied Animal Nutrition	3
362-230B	Microbial World	3
342-450A or 342-452A	Ruminant Production	3
342-454B or 342-456B	Non-Ruminant Production	3
342-410A	Animal Products I	3
342-411B	Animal Products II	3
	Two Economics courses	6
		65

Elective courses: 25 credits selected in consultation with major professor.

4.5.1.3 General Agricultural Science Major

The curriculum is designed to provide a general scientific and applied background for modern agriculture without the requirements of a specialized program and to develop an appreciation of applied agriculture in its on-farm environment. Graduates may be employed in agri-business, agricultural extension and communications, sales and marketing, teaching or farm management.

Prof. G. M. Jones, Major Professor

Required courses 28 credits

COURSE NUMBER	SUBJECT	CREDITS
342-250A	Principles of Animal Science	2
334-231B	Economics of Agriculture	3
360-201A, B	Statistical Methods	3
330-211B	Principles of Plant Science	3
372-210A	Principles of Soil Science	3
330-495D	Seminar and Assignment	2
348-330A	Technical and Research Writing	3
352-300A	Communication — Extension Methods	3
360-203A, B	Digital Computing I	3
338-201A	Introductory Meteorology	3
		28

Elective courses

Primary electives: A minimum of 30 credits from the list below, chosen in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
336-213B	Applied Hydrology	3
336-214E	Surveying	2
336-412A	Agricultural Machinery	3
340-331A	Cereal Crops	3
340-333A	Forage Crops	3
340-439B	Field Management	3
342-301B	Principles of Animal Breeding	3
342-321A	Mammalian Physiology	3
342-332B	Applied Animal Nutrition	3
344-202B	Cellular Biology	3
344-204B	Principles of Ecology	2
346-353A	Plant Physiology	4
334-230B	Economics of Marketing	3
334-332A	Farm Production Economics	3
352-301B	Community Development	3
356-201A	Introduction to Genetics	3
358-430A	Vegetable Physiology	3
358-443A	Storage and Handling	3
362-230B	The Microbial World	3
366-402A	General Plant Pathology	3
375-200B	Conservation	3
375-400B	Fisheries and Wildlife	3
370-360B	Rural Sociology	3
372-310B	Soil Chemistry & Fertility	3
372-320A	Soil Geography	3
372-331A	Phys. & Biol. Aspects of Pollution I	2
374-200B	Forest Resources	3

Free electives: to meet the minimum requirement of 90 credits for the degree.

4.5.1.4 Plant Science Major

The curriculum in the Plant Science Major involves intensive training in both the basic and applied biological sciences as related to the plant science. Concentration in either agronomy, horticulture or plant protection is possible. Graduates are professionally qualified and generally enter agricultural industries, Provincial or Federal Government services, extension, teaching or post-graduate studies.

Prof. H. R. Klinck, Major Professor

Required courses 36 credits

COURSE NUMBER	SUBJECT	CREDITS
342-250A	Principles of Animal Science	2
344-202B	Cellular Biology	3
345-252B	Plant Anatomy and Histology	2
346-256A	Systematic Botany	4
346-353A	Plant Physiology	4
346-451B	Plant Ecology	3
332-232A	Biochemistry I	3
334-231B	Economics of Agriculture	3
356-201A	Introduction to Genetics	3
360-201A, B	Statistical Methods	3
366-402A	General Plant Pathology	3
372-210A	Principles of Soil Science	3
		36

Agronomy Orientation

Additional required courses 18 credits

COURSE NUMBER	SUBJECT	CREDITS
340-331A	Cereal Crops	3
340-332B	Industrial Crops	3
340-333A	Forage Crops	3
340-439B	Field Management	3
340-490D	Project	3
372-310B	Soil Chemistry and Fertility	3
		18

Elective courses:

Primary electives: a minimum of 17 credits selected from the following list, chosen in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
177-670A	Cytology	3
177-671B	Cytogenetics	3
338-201A	Introductory Meteorology	3
340-350A	Experimental Methods in Agronomy	2
340-434A	Weed Biology and Control	3
340-435B	Plant Breeding	3
340-436B	Crop Adaptation and Distribution	3
340-440B	Seed Development, Production and Analysis	3
342-332B	Applied Animal Nutrition	3
350-330A	General Entomology	3
352-300A	Extension Methods	3
256-202B	Advanced Genetics	3
362-230B	The Microbial World	3

Horticulture Orientation

Additional required courses 31 credits:

COURSE NUMBER	SUBJECT	CREDITS
336-214E	Surveying	2
358-332D	Landscape Architecture	3
358-335B	Floriculture	3
358-338A	Pomology I	3
358-339B	Pomology II	3
358-420A	Vegetable Physiology I	3
358-431A	Vegetable Physiology II	3
358-443A	Storage and Handling of Horticultural crops	3
358-444B	Fruit and Vegetable Processing	3
358-495D	Seminar	2
362-230B	Microbial World	3
		31

Elective courses:

Primary electives: a minimum of 12 credits selected from the following list, chosen in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
338-201A	Introductory Meteorology	3
338-301B	Biothermodynamics	3
340-435B	Plant Breeding	3
340-439A	Field Management	3
350-330A	General Entomology	3
356-202B	Advanced Genetics	3
366-404B	Diseases of Horticultural Crops	3
372-310B	Soil Chemistry and Fertility	3

Free electives: to meet the minimum requirement of 90 credits for the degree.

Plant Protection Orientation

Additional required courses 19 credits:

COURSE NUMBER	SUBJECT	CREDITS
350-450A	Economic Entomology I	3
350-451B	Economic Entomology II	3
362-230B	Microbial World	3
366-301B	Introductory Mycology	3
366-405A	Intermediate Mycology	3
366-495D	Seminar	1
Either		
366-403B	Diseases of Field and Forest Crops	3
or		
366-404B	Diseases of Horticultural Crops	3
		19

Elective courses:

Primary electives: the student is advised to consider the following courses:

COURSE NUMBER	SUBJECT	CREDITS
338-201A	Introductory Meteorology	3
340-434A	Weed Biology and Control	3
340-436B	Crop Adaptation and Distribution	3
340-439A	Field Management	3
346-365A	Economic Botany	3
356-202B	Advanced Genetics	3
358-443A	Storage and Handling of Horticultural Crops	3
362-442A	Food Microbiology and Sanitation	3
366-490A	Project	3
372-310B	Soil Chemistry and Fertility	3

Free electives: to meet the minimum requirements of 90 credits for the degree.

NOTE: Students taking the Plant Science Major may not take 330-211A — Principles of Plant Science for credit.

4.5.1.5 Soil Science Major

The soil science major provides a program of specialization in soil science combined with application to an area of soils use such as soil fertility and crop growth (soils and crops orientation), or conservation of soil and water (soil conservation orientation). Students planning graduate study and a career in research should choose the soil research orientation.

Prof. A. F. Mackenzie, Major Professor

Required courses 35 credits

COURSE NUMBER	SUBJECT	CREDITS
372-201A	Principles of Soil Science	3
372-250A	Geology and Geomorphology	3
372-310B	Soil Chemistry and Fertility	3
372-330A	Soil Physics and Mechanics	4
372-420A	Soil Survey	3
372-491A	Project I	3
372-493B	Project II	3
372-495D	Seminar	1
362-331D	Microbial Ecology	3
330-211B	Principles of Plant Science	2
342-250A	Principles of Animal Science	2
334-231B	Economics of Agriculture	3
360-201A, B	Statistical Methods	3
		36

General Soil Science Orientation

Primary electives: 39 credits selected from an approved list in consultation with the major professor.

Free electives to meet the minimum requirement of 90 credits for the degree.

Soils and Crops Orientation

Primary electives: 33 credits selected from an approved list in consultation with the major professor.

Soil Conservation Orientation

Primary electives: 24 credits selected from an approved list in consultation with the major professor.

Free electives to meet the minimum requirement of 90 credits for the degree.

Soil Research Orientation

Primary electives: 21 credits selected from an approved list in consultation with the major professor.

Free electives to meet the minimum requirement of 90 credits for the degree.

4.5.2 CURRICULUM FOR THE B.Sc. (Agricultural Engineering)

The curriculum integrates the fundamentals common to all branches of engineering with the agricultural and biological sciences. It allows persons to proceed from an understanding of why and how certain conditions affect plants and animals to the design of systems that enhance the condition of the environment and improve food handling and processing methods.

Prof. J. R. Ogilvie, Major Professor

Required courses 64 or 68 credits

COURSE NUMBER	SUBJECT	CREDITS
336-201A	Mechanics I	4
336-211B	Mechanics II	4
336-216B	Materials Science	3
336-312A	Circuit Analysis and Electric Machines	3
336-315B	Machine Design	4
336-341B	Strength of Materials	4
336-490D	Seminar and Project	3
372-210A	Principles of Soil Science	3
372-330B	Soil Physics	3
360-202A	Calculus	3
360-204A	Linear Algebra	3
360-105B	Differential Equations	3
360-201A, B	Statistical Methods	3
360-203A	Digital Computing I	3
305-040A	Thermodynamics	3
305-246A	Heat Transfer	3
	or	
302-211A	Heat Transfer	4
305-211B	Fluid Mechanics	3
	or	
305-230A	Fluid Mechanics	4
336-417B	Soil Mechanics and Foundations	2
	An Animal Science Course	2 or 3
	An Agronomy or Horticulture Course	2 or 3
	An Economics Course	3
		64 68

Electives selected in consultation with Major Professor.

A. Advanced Agricultural Engineering — 12 credits from:

COURSE NUMBER	SUBJECT	CREDITS
336-215B	Principles of Hydrology	3
336-314A	Agricultural Structures	3
336-320A	Systems for Processing Food Products	3
336-321B	Unit Operations in Food Processing	3
336-322B	Food Production and Processing Waste Management	3
336-323A	Physical Properties of Biological Materials	3
336-410B	Instrumentation and Control	3
336-411B	Off-Road Power Machinery	3
336-412A	Agricultural Machinery	3
336-413B	Materials Handling Systems	3
336-416B	Engineering for Land Development	3
336-419B	Structural Design	3

In special cases graduate level courses may be taken.

B. Humanities and Social Sciences — Minimum 6 credits.

C. Other courses from Faculties of Agriculture or Engineering to round out the student's program and meet the requirement of a minimum of 96 credits for the degree.

4.5.3 CURRICULA FOR THE B.Sc.(Agr.) DEGREE IN BIOLOGICAL SCIENCES

This area of specialization covers many aspects of biology and gives first, a training in fundamentals of science and second, an opportunity to develop specialization. All students are required to take certain 'core' courses followed by required and elective courses related to the chosen specialty to meet a credit total of 90. The aim of the program is to develop expertise in applications of biology based on fundamental aspects.

Professor R. K. Stewart, Coordinator

Core Courses Required for all major areas of specialization.

COURSE NUMBER	SUBJECT	CREDITS
332-232A	Biochemistry I	3
344-200A	Biology of Organisms I	3
344-201B	Biology of Organisms II	3
344-202B	Cellular Biology	3
344-205B	Principles of Ecology	3
360-201A, B	Statistical Methods I	3
	Total	18

4.5.3.1 Botanical Sciences Major

Botanical Sciences offers foundation courses for those who like to work with green plants or fungi. This is the option for anyone planning a career in some aspect of Botany, Mycology or Plant Pathology.

Major Professor, R. H. Estey

Required courses 31 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core Courses	18
346-251A	Plant Histological and Cytological Methods	3
346-252B	Plant Anatomy and Histology	2
346-256A	Systematic Botany	4
366-490D	Project	3
366-495D	Seminar	1
	Total	31

Elective courses: At least 8 courses selected from the following list in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
344-306B	Biological Instrumentation	3
346-254B	Plant Morphology	2
346-353A	Plant Physiology	4
346-355A, B	Special Topic in Botanical Sciences	2
346-451B	Plant Ecology	3
356-201A	Introduction to Genetics	3
356-202B	Advanced Genetics	3
362-230B	Microbial World	3
362-331B	Microbial Ecology	3
366-301B	Introductory Mycology	3
366-355A, B	Special Topic in Plant Pathology	2
366-402A	General Plant Pathology	3
366-403B	Diseases of Field and Forest Crops	3
366-404B	Diseases of Horticultural Crops	3
366-405A	Intermediate Mycology	3

Free electives: to meet the minimum requirements of 90 credits for the degree.

4.5.3.1 Environmental Biology Major

This program aims at training scientists with basic knowledge in Biology and strong emphasis in Ecology. As ecologists they will be best equipped to investigate the scientific aspects of the relationships between organisms and their environment and they will be less oriented towards the political and sociological components of the ecosystem.

Major Professor, R. K. Stewart

Biological Orientation

Required courses 26 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses	18
375-300A	Renewable Resources	3
	Project (in an appropriate department)	3
	Seminar (in an appropriate department) normally	2
	Total	26

Elective courses: A minimum of 12 courses selected from the following list in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
338-201A	Introductory Meteorology	3
346-255A	Systematic Botany	3
346-451A	Plant Ecology	3
349-307A	Natural History of the Vertebrates	3
349-312A	Principles of Systematic Zoology I	3
349-315A	Biology of Inland Waters I	3
349-316B	Biology of Inland Waters II	3
349-418A	Terrestrial Animal Ecology I	3
349-419B	Terrestrial Animal Ecology II	3
350-444B	Soil Fauna Ecology	3
356-201A	Introduction to Genetics	3
360-203A, B	Digital Computing I	3
360-600A	Statistics Methods II	3
362-230B	Microbial World	3
366-213B	Applied Hydrology	3
372-210A	General Soil Science	3
372-230B	Physical Environment	3
375-400A	Fisheries and Wildlife	3
375-410B	Wildlife Ecology	3

Free electives: To meet the minimum requirements of 90 credits for the degree.

Major Professor, R. H. Douglas

Physical Orientation

Required courses 39 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core Courses	18
332-330A	Physical Chemistry I	3
338-201A	Introductory Meteorology	3
338-301B	Biothermodynamics	3
338-495D	Project	3
360-202A	Calculus	3
372-210A	Principles of Soil Science	3
375-300A	Renewable Resources	3

Elective courses: A minimum of 8 courses from the following list in consultation with the Major Professor.

COURSE NUMBER	SUBJECT	CREDITS
336-213B	Applied Hydrology	3
338-303A	Principles of Atomic and Nuclear Physics	3
338-307B	Atmospheric Physics	3
338-308B	Biometeorology	3
338-404B	Radiation Biophysics	3
346-353A	Plant Physiology	4
346-451B	Plant Ecology	3
360-203A	Digital Computing I	3
360-204A	Linear Algebra	3
360-205B	Differential Equations	3
360-206A	Mathematical Methods in Ecology	3
360-600A	Statistics Methods II	3
362-230B	Microbial World	3
372-330A	Soil Physics and Mechanics	4
375-410B	Wildlife Ecology	3

Free electives: To meet the minimum requirements of 90 credits for the degree.

4.5.3.3 Microbiology Major

Students receive training in fundamental principles and applied aspects of microbiology. Successful graduates are competent to work in government and industrial research laboratories and in the pharmaceutical, fermentation and food industries.

Major Professor, R. Knowles

Required courses 39 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core Courses	18
344-306B	Biological Instrumentation	3
362-230B	Microbial World	3
362-331B	Microbial Ecology	3
362-338B	Physiology of Microorganisms	3
362-427D	Frontiers in Microbiology	1
362-492D	Project	5
362-495D	Seminar	3
	Total	39

Elective courses: A minimum of 8 courses selected from the following list in consultation with the Major Professor.

332-222B	Analytical Chemistry I	3
332-230A*	Organic Chemistry I	3
332-324A	Analytical Chemistry II	3
338-301B	Biothermodynamics	3
356-201A	Introductory Genetics	3
360-202A	Calculus	3
362-340A	Pathogenic Microbiology and Epidemiology	3
362-438A	Immunology	3
362-442A	Food Microbiology and Sanitation	3
366-301B	Introductory Mycology	3
366-406A	Virology	3

Free electives: To meet the minimum requirements of 90 credits for the degree.
*Replace by another elective if already taken at CEGEP.

4.5.3.4 Zoological Sciences Major

This program is a three-pronged one. By careful course selection the candidate may emphasize general zoology, entomology or soil and fresh water zoology. Students are given a basic background to proceed into various areas of Zoological research and into professional work in entomology and applied zoology. Those who plan careers in animal taxonomy, zoological field work, pest control, etc., are especially advised to consider this area of specialization.

Major Professor, F. O. Morrison

Required courses 29 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses	18
349-205B	Laboratory Techniques in Zoology	3
349-490D or 350-490D	Zoology or Entomology Project	3
349-495D	Seminar and Literature Review	2
356-201A	Introduction to Genetics	3
	Total	29

Elective courses: A minimum of 14 courses selected from the following list in consultation with the Major Professor. Check the Announcement for years in which alternating courses are offered.

COURSE NUMBER	SUBJECT	CREDITS
177-670A	Cytology (by permission of instructor)	3
177-671B	Cytogenetics (by permission of instructor)	3
332-230A	Organic Chemistry I	3
332-231B	Organic Chemistry II	3
332-339A	Physical Chemistry	3
338-301A	Biothermodynamics	3
338-308B	Biometeorology*	3
342-321A	Mammalian Physiology	3
342-322B	Reproductive Physiology	3
346-256A	Systematic Botany	3
349-203B	Invertebrate zoology	3
349-307A	Natural History of the Vertebrates	3
349-308B	Comparative Morphology of the Vertebrates	3
349-312A	Principles of Systematic Zoology I	3
349-313B	Principles of Systematic Zoology II	3
349-315A	Biology of Inland Waters I	3
349-316B	Biology of Inland Waters II	3
349-418A	Terrestrial Animal Ecology I	3
349-419A	Terrestrial Animal Ecology II	3
349-422A	Parasitology I	3
349-423B	Parasitology II	3
350-330A	General Entomology	3
350-331A	Insect Morphology I	3
350-332B	Insect Morphology II	3
350-333A	Invertebrate Physiology I	3
350-334B	Invertebrate Physiology II	3
350-440B	Systematic Entomology	3
350-442A	Arachnida and Other Terrestrial Arthropods	3
350-444B	Soil Fauna Ecology (Soil Zoology)	3
350-452A	Economic Entomology I	3
350-453B	Economic Entomology II	3
356-202B	Advanced Genetics	3
356-454A	Pest Insects Genetics	3
360-203A, B	Digital Computing I	3
360-301A	Numerical Methods	3
360-680A	Nematology (by permission of instructor)	3
362-230B	Microbial World	3
362-331B	Microbial Ecology	3
362-338B	Physiology of Microorganisms	3
366-406A	Virology	3
372-230B	The Physical Environment	3
375-200B	Conservation	3
375-322A	Wildlife Ecology I	3
375-410B	Fisheries and Wildlife	3

Free electives: To meet the minimum requirements of 90 credits for the degree.

4.5.4 CURRICULA FOR THE B.Sc.(Agr.) DEGREE IN RENEWABLE RESOURCES DEVELOPMENT

Students registered in any of the 5 Majors of this Group can expect to gain a comprehensive overview of the renewable resources, the socio-economic implications of development and planning as well as a thorough knowledge of the basic science disciplines involved.

Professor A. F. MacKenzie, Coordinator

Core of required courses for all major areas of specialization — 33-38 credits.

COURSE NUMBER	SUBJECT	CREDITS
334-200A	Principles of Economics	3
334-343B	Resource Economics	4
344-204B	Principles of Ecology	3
352-300A	Communication — Extension Methods	3
360-201A, B	Statistical Methods I	3
370-230A	Introductory Sociology	3
372-230B	The Physical Environment — *or any two of { 372-210A Princ. of Soil Sci.; 338-201A Intro. Met.; 336-215B Prin. of Hydrology* }	3-6
375-211B	History and Philosophy of Resource Development	3
375-300A	Renewable Resources	3
375-491D	Seminar	2
375-496D	Project I (or a project in an approved Dept. or Division)	3-5
		33-38

*Those 3 courses are required for Environmental Conservation, and suggested for Agric. Land Use Planning and Development, and Community Resource Development.

4.5.4.1 Agricultural Land Planning and Development

This major prepares the student to carry out development, experiment with solutions of integrated resource management in terms of optimal land use under any given set of economic, social and ecological conditions.

Prof. J. F. G. Millette, Major Professor

Required courses 44-49 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core	33-38
372-210A	Principles of Soil Science	3
372-250A	Geology and Geomorphology	3
372-320A	Soil Geography	3
372-420A	Soil Survey	3
		12

Elective courses

Primary electives: a minimum of 18 credits selected from an approved list in consultation with major professor.

Primary electives (18 credits from the following)

336-312E	Applied Hydrology	3
336-214E	Surveying	2
336-416B	Engineering for Land Development	3
334-410A	Land and Resource appraisal	3
358-332D	Landscape architecture	3
370-341A	The Urban Community	3
370-360B	Rural Sociology	3
372-330A	Physical Properties of Soils	3
374-200E	Forest Resources	3
338-201A	Introductory Meteorology	3

Free electives: to meet the minimum requirement of 90 credits for the degree.

List of recommended elective courses on the Macdonald Campus.

336-212A	Graphics	3
336-417B	Soil Mechanics and Foundations	2
330-211B	Principles of Plant Science	2
346-451A	Plant Ecology	3
340-332B	Industrial crops	3
348-310B	Studies in the Mass Media	3
348-330A	Technical and Research Writing	3
352-301B	Community Development	3
358-335B	Floriculture	3
360-203A	Digital Computing I	3
360-401A	Mathematical Statistics I	3
360-402B	Mathematical Statistics II	3
360-202A	Calculus	3
360-303B	Digital Computing II	3
338-308B	Biometeorology	3
375-200B	Conservation	3
375-212B	The process of development	3
375-331A	Phys. & Biol. Aspects of Pollution I	3
375-332B	Phys. & Biol. Aspects of Pollution II	3
375-410B	Wildlife Ecology	3
375-412B	Field techniques in Area Development	3
370-350A	Research Methods for Social Surveys	3
349-315A	Biology of Inland Waters I	3
349-316B	Biology of Inland Waters II	3
338-307B	Atmospheric Physics	3
372-310B	Soil Chemistry and Fertility	3

List of recommended electives on the Montreal Campus.

154-250D	Introduction to Economic Theory	6
154-313D	Economic Development	6
154-425D	Economics of Ecology	6
280-221A	Behavioural Science I (Management)	3
280-222B	Behavioural Science II (Management)	3
183-308B	Air Photo Interpretation (Geography)	3
301-001A	History of Architectural Theory I	3
301-102B	History of Architectural Theory II	3
301-010A	Architecture, Communication and Behaviour	4
301-230A	Landscape (Architecture)	2
473-144A	Property I (Law)	3
495-471B	Environment and the Law (Law)	2

4.5.4.2 Community Resource Development

This Major concentrates on interdisciplinary study of the development, use and management of natural and community resources for human needs. It involves an integration of the physical, economic, social, and institutional approaches to the development of an area's resources. Emphasis is placed on public policy considerations affecting resource use and the attempts by community citizens and government organizations to increase the economic opportunity and quality of living of communities and their surrounding regions.

Prof. M. Chevrier, Major Professor

Required core courses 33-38

Primary electives: at least 24 credits from the following courses to constitute a primary area of specialization. These are to be chosen by the student and approved by the major professor.

COURSE NUMBER	SUBJECT	CREDITS
372-210A	Principles of Soil Science	3
330-211B	Principles of Plant Science	2
342-250A	Principles of Animal Science	2
370-360B	Rural Sociology	3
370-342B	Social Processes and Institutions	3
370-350A	Research Methods for Social Surveys	3
375-212B	Community Resource Development	3

COURSE NUMBER	SUBJECT	CREDITS
375-412A	Field Techniques	3
360-203A, B	Digital Computing I	3
334-231A	Economics of Agriculture	3
334-420B	Political and Economic Aspects of Resource Problems	3

Secondary electives: at least 18 credits in related courses from any area of specialization normally from within renewable resources development major areas including area of primary interest.

Free electives: to meet the minimum requirement of 90 credits for the degree. Selected in consultation with major professor.

4.5.4.3 Environmental Conservation

This Major concentrates on the physical environment, bringing to bear areas of study such as soil and water management and resource development. **Prof. R. H. Douglas, Major Professor**

Required core courses 33-38 credits

Elective courses

Primary electives: a minimum of 24 credits selected from the following list in consultation with major professor.

COURSE NUMBER	SUBJECT	CREDITS
Year I		
332-222B	Analytical Chemistry I	3
332-232A	Biochemistry I	3
336-213B	Applied Hydrology	3
338-201A	Introductory Meteorology*	3
356-201A	Introduction to Genetics	3
362-230B	Microbial World	3
372-210A	Principles of Soil Science*	3
372-250A	Geology and Geomorphology	3
375-200B	Conservation	3
274-200B	Forest Resources	3
Year II		
336-215B	Principles of Hydrology*	3
338-201B	Biothermodynamics	3
338-307B	Atmospheric Physics	3
349-315A	Biology of Inland Waters I	3
349-316B	Biology of Inland Waters II	3
362-331B	Microbial Ecology	3
372-320A	Soil Geography	3
372-330A	Soil Physics and Mechanics	4
375-331A	Physical and Biological Aspects of Pollution I	3
375-332B	Physical and Biological Aspects of Pollution II	3
332-451A	Food Chemistry I	3
340-434A	Weed Biology and Control	3
346-451B	Plant Ecology	3
350-450A	Economic Entomology	3
375-410B	Wildlife Ecology	3

*required courses

Secondary electives: a minimum of 18 credits in related courses selected in consultation with major professor.

Free electives: to meet the minimum requirement of 90 credits for the degree.

4.5.4.4 Resource Economics and Management

Students in this Major will concentrate on the interaction of social and economic systems and their impact on the human environment through the emphasis on economics and management courses.

Prof. G. R. Bachman, Major Professor

Required core course 33-38 credits

Primary electives: at least 30 credits from the following courses constitute a primary area of specialization. These are chosen by the student and approved by the major professor.

Introductory courses in economics and management must be elected early in the course sequences to meet prerequisite requirements to other courses.

COURSE NUMBER	SUBJECT	CREDITS
*154-250D	Intro. Economic Theory	6
*154-302D	Money and Banking	6
*154-425D	Economics of Ecology	6
*154-307D	Economic Statistics	6
*280-221A	Behavioural Science	3
*280-222B	Behavioural Science	3
*280-330D	Elements of Marketing	6
*280-410D	Commercial Law	6
*280-300D	Management Accounting	6
*160-211D	Comparative Government	6
334-231A	Economics of Agriculture	3
334-420B	Political and Economic Aspects of Resource Problems	3
*280-204A, B or 360-203A, B	Digital Computing I	3
360-202A	Calculus	3

Secondary electives: at least 18 credits of related courses from any area of specialization that can be related to renewable resources development, including the area of primary interest.

Free electives: to meet the minimum requirements of 90 credits for the degree.

*Offered on the McGill campus.

4.5.4.5 Wildlife Resources

This Major concentrates on the Biological resources emphasizing the co-development of competence in wildlife ecology and other complementary disciplines. This Major leads to work in resource planning, wildlife socio-economies, wildlife administration, wildlife management and wildlife resource evaluation.

Prof. J. B. Bider, Major Professor

Required core courses 33-38 credits

Elective courses

Primary electives: a minimum of 24 credits selected from the following list in consultation with major professor.

COURSE NUMBER	SUBJECT	CREDITS
349-308B	Vertebrate Morphology	3
349-307A	Natural History of the Vertebrate	3
349-312A	Principles of Systematic Zoology I	3
349-313B	Principles of Systematic Zoology II	3
349-315A	Biology of Inland Waters I	3
349-422A	Parasitology I	3
349-423B	Parasitology II	3
350-330A	General Entomology	3
356-201A	Introduction to Genetics	3
356-202B	Advanced Genetics	3
356-203A	Heredity, Evolution and Society	3
375-400A	Fisheries and Wildlife	3
375-410B	Wildlife Ecology	3
349-418A	Terrestrial Animal Ecology I	3
349-419B	Terrestrial Animal Ecology II	3
346-451B	Plant Ecology	3
346-256A	Systematic Botany	3
374-200B	Forest Resources	3
374-330A	Private Forestry	3
342-301B	Principles of Animal Breeding	3
342-321A	Mammalian Physiology	3

COURSE NUMBER	SUBJECT	CREDITS
342-330A	Fundamentals of Nutrition	3
342-322B	Reproductive Physiology	3
342-332B	Applied Animal Nutrition	3
375-200B	Conservation	3

Secondary electives: a minimum of 18 credits in related courses selected in consultation with major professor.

Free electives: to meet the minimum requirement of 90 credits for the degree.

4.5.5 CURRICULA FOR THE B.Sc.(F.Sc.) DEGREE IN FOOD AND CONSUMER SCIENCES

This area of specialization offers the student a number of related Majors in the field of Food and Consumer Sciences. Depending on the Major selected the student upon completion a) is prepared to serve the community in all types of consumer information services, b) has the necessary background to become a Home Economics Specialist Teacher, c) can enter the professions of dietetics, food technology, or food administration d) can proceed to a career in research and development, or e) do graduate work in the different scientific fields.

Prof. E. S. Idziak, Coordinator

Core courses:* Required by all students taking the non-professional Majors within the Food and Consumer Sciences area of specialization — 18-20 credits.

COURSE NUMBER	SUBJECT	CREDITS
332-232A	Biochemistry I	3
344-202B	Cellular Biology	3
360-201A, B	Statistical Methods I	3
362-230B	Microbial World	3
377-200A	Perspectives in Food Science	3
377-490D	Food and Consumer Sciences Project I	3
or		
377-491D	Food and Consumer Sciences Project II	5
		18 or 20

*Students entering without any organic chemistry must take Organic Chemistry I (332-230A) in their first term.

4.5.5.1 Consumer Services Major

This Major is directed to subject matter dealing with areas of consumer interests and problems. By a judicious selection of electives, students may concentrate on nutrition, economics, communications arts, etc., as related to consumer education. Graduates find careers in Consumer Information Services, Marketing Research and the Communication Media.

Prof. C. L. Fergusson, Major Professor

Required courses — 39 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses: (page 40)	18
334-200A	Economics I	3
334-201B	Economics II	3
376-210A	Food Standards I	3
376-211B	Food Standards II	3
381-330A	Consumer Education I	3
381-331B	Consumer Education II	3
386-332A	Textiles — Natural and Man Made Fibres	3

Elective courses: To meet the minimum requirements of 90 credits for the degree. Chosen in consultation with major professor.

4.5.5.2 Nutrition Major

The graduate from a nutrition Major has a narrow but challenging and unlimited future. Normally the graduate will continue on to further studies preparing for careers in research or as specialist in nutrition for government agencies, particularly those agencies concerned with the maintenance of the good health of our society.

Prof. R. A. Raymond, Major Professor

Required courses — 57 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses: (page 40)	18
332-222B	Introductory Analytical Chemistry	3
332-324B	Quantitative Inorganic Chemistry	3
332-451A	Food Analysis I	3
342-234B	Biochemistry II	3
342-321A	Mammalian Physiology	3
342-330A	Fundamentals of Nutrition	3
342-331B	Fundamentals of Human Nutrition	3
344-200A	Biology of Organisms I	3
376-210A	Food Standards I	3
382-305B	Normal Human Nutrition	3
382-435B	Applied Human Nutrition	3
382-441A	Diet Therapy I	3
382-442B	Diet Therapy II	3

Elective courses: To meet the minimum requirements of 90 credits for the degree. Chosen in consultation with major professor.

4.5.5.3 Food Chemistry Major

This selection of courses is intended for those who look to careers as food or foodstuffs chemists in industry or the public services. The selection is also appropriate for those who may wish to proceed to graduate work in food science, biochemistry, nutritional sciences, or clinical chemistry.

Prof. R. H. Common, Major Professor

Required courses 60 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses: (page 40)	20
332-231B	Organic Chemistry II	3
332-222B	Introductory Analytical Chemistry	3
332-234B	Biochemistry II	3
332-324A	Quantitative Inorganic Analysis	3
332-333A	Chemical Syntheses and Laboratory Techniques	3
332-339A	Introductory Physical Chemistry	3
332-340B	Advanced Physical Chemistry	3
332-434B	Chemical Structure and Instrumentation	3
332-451A	Food Analysis I	3
332-452B	Food Analysis II	3
342-330A	Fundamentals of Nutrition	3
342-331B	Fundamentals of Human Nutrition	3
or		
342-332B	Applied Animal Nutrition	3
362-442A	Food Microbiology and Sanitation	3
377-495D	Food and Consumer Sciences Seminar	1

Electives courses: To meet the minimum requirement of 90 credits for the degree. Chosen in consultation with major professor.

4.5.5.4 Food Administration Major

A wide choice of management careers exists in the Food Industry. Graduates may choose from opportunities in the hospitality area of hotel, motel, or tourist administration or in food service areas of public restaurants, cafeterias, catering services, in-plant feeding, the armed services, institutional operations, as well as in the related fields of sales and advertising.

Prof. D. A. Raymond, Major Professor

Required courses: 57 credits

COURSE NUMBER	SUBJECT	CREDITS
	Core courses: (page 40)	18
334-200A	Economics I	3
334-201B	Economics II	3
368-301A	Psychology	3
376-210A	Food Standards I	3
376-211B	Food Standards II	3
380-343A	Accounting & Cost Control	3
380-345B	Food Facility Layout and Planning	3
380-441B	Food Service Production Management	3
380-442A	Organization & Management	3
380-444A	Personnel Management I	3
380-445B	Personnel Management II	3
382-212B	Basic Nutrition	3
384-452A	Instructional Communication II	3

Elective courses: To meet the minimum requirement of 90 credits for the degree. Chosen in consultation with major professor.

4.5.5.5 Majors leading to membership in Professional Associations

4.5.5.5.1 Dietetics Major

The majority of dietitians practise their profession as a member of a health care team in hospitals, health care units or public service agencies. Within the profession there are six areas of concentration: 1) Diet therapy, 2) Teaching, 3) Administration of Dietary Services, 4) Public Information, 5) Research, and 6) Consultative Services. Selection of appropriate courses gives the students a sound foundation in their chosen field of study.

Prof. D. A. Raymond, Major Professor

Required courses: 63 credits

COURSE NUMBER	SUBJECT	CREDITS
332-232A	Biochemistry I	3
332-234B	Biochemistry II	3
334-200A	Economics I	3
342-321A	Mammalian Physiology	3
342-330A	Fundamentals of Nutrition	3
342-331B	Fundamentals of Human Nutrition	3
344-200A	Biology of Organisms I	3
344-202B	Cellular Biology	3
360-201A	Statistics Methods	3
362-230B	Microbial World	3
368-301A	Psychology	3
376-210A	Food Standards I	3
376-211B	Food Standards II	3
377-200A	Perspectives in Food Science	3
377-490D or 377-497D	Food and Consumer Sciences Project I / Food and Consumer Sciences Seminar III	3
380-441B	Food Service Production Management	3
380-444A	Personnel Management I	3
380-445B	Personnel Management II	3
382-441A	Diet Therapy I	3
382-442B	Diet Therapy II	3
384-452A	Instructional Communication II	3

Students will be informed of the recommended courses for each specialization by the major professor. In addition electives will be selected in an amount to meet the minimum requirement of 90 University credits for the degree.

4.5.5.5.2 Food Science Major

The course selection reflects the requirements for membership in the professional association of Food Technologists. Graduates find employment in the areas responsible for product quality control, food processing management, industrial research and development, or they may continue to do graduate studies in the applied sciences. **Prof. E. S. Idziak, Major Professor**

Required courses: 57 credits

COURSE NUMBER	SUBJECT	CREDITS
332-222B	Introductory Analytical Chemistry	3
332-232A	Biochemistry I	3
332-234B	Biochemistry II	3
332-324A	Quantitative Inorganic Analysis	3
332-339A	Introductory Physical Chemistry	3
332-451A	Food Analysis I	3
332-452B	Food Analysis II	3
334-200A	Economics I	3
336-320B	Systems for Processing Food Products	3
342-330A	Fundamentals of Nutrition	3
348-330A	Technical & Research Writing	3
358-444B	Fruit & Vegetable Processing	3
360-201A	Statistics Methods	3
360-203A or B	Digital Computing I	3
362-230B	Microbial World	3
362-442A	Food Microbiology and Sanitation	3
376-210A	Food Standards I	3
377-200A	Perspectives in Food Science	3
377-490D	Food and Consumer Sciences Project I	3

Elective courses: To meet the minimum requirement of 90 credits for the degree. Chosen in consultation with major professor.

4.5.5.6 Major leading to a Bachelor of Education Degree Home Economics Education Major

This program leads to a B.Ed. degree majoring in home economics. The student registers for two years in the School of Food Science (Macdonald Campus) followed by one year in the Faculty of Education (Montreal Campus). Graduates also receive a Teaching Permit for secondary schools in Quebec which is replaced by a Teaching Certificate after two years of successful teaching. This program also prepares the student for extension or communications positions in home economics.

Prof. V. Shipley, Major Professor

Required courses 33 credits

COURSE NUMBER	SUBJECT	CREDITS
376-210A	Food Standards I	3
376-211B	Food Standards II	3
378-331B	Family Management	3
378-332A	Family Living — Development	3
381-330A	Consumer Education I	3
381-331B	Consumer Education II	3
382-212B	Basic Nutrition	3
384-320B	Instructional Communications I	3
386-220A	Contemporary Clothing Construction	3
386-322B	Psychological and Social Bases of Clothing	3
386-332A	Textiles — Natural and Man Made Fibres	3

Elective courses: To meet the minimum requirements of 60 credits. Chosen in consultation with Major Professor. A further 30 credits will be taken in the Faculty of Education for completion of the degree.

4.6 ASSOCIATED COLLEGES

By special agreement, the University of Prince Edward Island, Charlottetown, P.E.I., and the Nova Scotia Agricultural College, Truro, N.S., have arranged to provide their students with a program of study permitting transfer to the upper years in Agriculture or Food Science at Macdonald College. Students who have completed such a program

of study with satisfactory standing in courses equivalent to those of the B.Sc.(Agr.) and the B.Sc.(F.Sc.) curricula will be admitted to the appropriate years of the program, provided that their overall averages, and their grades in individual courses are considered satisfactory by the Committee on Admissions.

4.7 REQUIREMENTS FOR GRADUATION

The requirements for graduation are:

(a) A minimum CGPA of 2.00 with the minimum credit requirements for the Major.

(b) *Practical experience.* Satisfactory fulfilment of regulations concerning practical and professional experience, as below.

At least one season of farm experience is essential for admission to certain options in agricultural sciences. Students who have not secured such experience by the beginning of the Second year may find themselves ineligible for admission to these options. In the case of students from outside Canada, this experience is best obtained in the country from which the student comes.

Students majoring in Agronomy are advised to spend one summer in the Agronomy Department at the College, or at some other approved college or experimental farm. This may be between the First and Second or Second and Third years.

Students majoring in Agricultural Engineering are required to have at least 1,000 hours experience in some phase of agricultural engineering work approved by the Agricultural Engineering Department.

In General Agricultural Science, farm experience or experience in a related area is not a prerequisite to registration in this option. However, some background is desirable and can be reviewed with the Chairman in terms of the specific interests of the students at first registration in the Option.

Students majoring in Horticulture are advised to spend one summer in the Horticulture Department at the College, or at some approved vegetable farm, fruit farm, or nursery.

No summer work or practical experience requirements need be met in the case of students majoring in the other options.

5 DESCRIPTION OF COURSES

5.1 AGRICULTURAL ENGINEERING

NOTE: Instructors may refuse registration in a course to any student who does not have, in their opinion, an adequate academic background in the area.

336-210A. MECHANICS I. (4 Credits; 3 lectures and 2 hours-problems.) Non-concurrent force systems; analysis of simple trusses and multiforce frames; friction; shearing forces and bending moments in beams and frames; centres of gravity; solution of problems by energy methods.
PROFESSOR MARQUIS

336-211B. MECHANICS II. (4 Credits; 3 lectures and 2 hours-problems; *Prerequisite:* Agricultural Engineering 210-A.) Moments of inertia of areas and masses; curvilinear motion of particles, kinematics and kinetics of particles; kinematics and kinetics of rigid bodies, relative motion; kinetics of rigid bodies; simple harmonic motion, pendulums governors, gyroscopes; statics in three dimensions; shearing forces and bending moments in beams and frames and rotating bodies and link assemblies.
PROFESSOR MALIK

336-212A. GRAPHICS. (3 Credits; 2 lectures and 1 lab.) Solution of two- and three-dimensional geometry problems by graphical techniques, charts and nomography. Graphical calculus.
PROFESSOR OGILVIE

336-214E. SURVEYING. (2 Credits; 2 weeks following second term.) Use of engineer's tape, level, transit, plane table, hand level, and compass for land measurement, differential levelling, topographic mapping, surveying computations and preparation of plans.
PROFESSOR BROUGHTON

336-215B. PRINCIPLES OF HYDROLOGY. (3 Credits; 3 lectures and one 2 hr. lab.) Measurement and analysis of components of the water cycle. Precipitation, mass curves, intensity — duration — frequency relationships. Energy balance, evapotranspiration from lakes, soil and vegetal covers. Interception, infiltration, ground-water and wells. Runoff hydrograph components. Estimation of water quantities and water flow rates for design of water control projects. Snowmelt, basin yield.
PROFESSOR BROUGHTON

336-216B. MATERIALS SCIENCE. (3 Credits; 2 lectures and 1 lab.) Relation between structure and properties in ceramic and organic materials. Bonding, structures; imperfections. Phase diagrams. Shaping, joining and testing of materials. Heat treatment, work in hardening and annealing of metals. Introduction to physical metallurgy and processes. Failure theories.
PROFESSOR McKYES

336-305A. FLUID MECHANICS. (4 Credits; 3 lectures and one 2 hr. lab. or problems.) (Not offered in 1973-74.) Properties of fluids; principles of flow of incompressible and compressible fluids; pressure variations; flow measurement; dimensional analysis; introduction to model studies; energy conversion; friction; boundary layers; conduit and open channel systems; simple applications to turbo machinery.
PROFESSOR BROUGHTON

336-312A. CIRCUIT ANALYSIS. (3 Credits; 3 lectures and one 2 hr. lab. or problems). General circuit laws and d.c. circuits; electromagnetic circuits; inductance and capacitance; natural and forced response of circuits; analysis of single phase and three phase networks; electromechanical, electrochemical and electron energy conversion; electrical instruments.
PROFESSOR McKYES

336-314A. AGRICULTURAL STRUCTURES. (3 Credits; 3 lectures and 2 hr. lab.) Analysis and design of structures to house animals and plants and to process and store animal and plant products. Introduction to environmental control systems and animal waste management.
PROFESSOR OGILVIE

336-315B. MACHINE DESIGN. (4 Credits; 3 lectures, 2 hours-problems; *Prerequisite:* Agricultural Engineering 341B.) (Offered in alternate years, given in 1973-74.) Design of shafting, bearings, gear, belt and chain drives, clutches, brakes, vibrations, fasteners, welded joints, frames. Principles and practices of Engineering Drawing will be adhered to in laboratory submissions.
PROFESSOR NORRIS

336-316B. INSTRUMENTATION AND MEASUREMENT. (3 Credits; 1 lecture and 2 labs.) The course is designed to acquaint the student with problems of measurement, with principles behind use of instruments in chemical and physical measurements, and the errors inherent in such analyses. Laboratory practice in instrumentation and measurement techniques will constitute a major portion of the course.
PROFESSORS NORRIS, HENNEBERRY, SCHUEPP, MacKENZIE

336-320A. SYSTEMS FOR PROCESSING FOOD PRODUCTS. (3 Credits; 3 lectures and one lab.; *Prerequisite:* Microbiology 442A.) Principles and use of electricity, steam, refrigeration and hydraulics in food plants; design features of specialized processing equipment, and process control. PROFESSOR MALIK

336-321B. UNIT OPERATIONS IN FOOD PROCESSING. (3 Credits; 3 lectures and one 2 hr. lab.; *Prerequisite:* 336-320A or 302-211A.) Analysis and design of such processes as drying, dehydration, refrigeration, size reduction, separation and materials handling, including applications of heat and mass transfer. PROFESSOR MALIK

336-322B. FOOD PRODUCTION AND PROCESSING WASTE MANAGEMENT. (3 Credits; 2 lectures and one 2 hr. lab.) (Offered in alternate years, given in 1974-75.) Characteristics of waste; storage, transport and disposal, treatment processes, aspects of pollution control. PROFESSOR OGILVIE

336-323A. PHYSICAL PROPERTIES OF BIOLOGICAL MATERIALS. (3 Credits; 2 lectures and one 2 hr. lab.) (Offered in alternate years, given in 1973-74). An engineering analysis of the structure, physical attributes, mechanical and rheological properties of biological materials, emphasizing the relationship of these properties to production and processing of agricultural products and food. Mathematical models considering size, shape, volume, surface area, density; quasistatic and dynamic viscoelastic behaviour; non-Newtonian fluid models; optical properties; behaviour of granular materials. PROFESSOR NORRIS

336-341B. STRENGTH OF MATERIALS. (4 Credits; 3 lectures and 1 lab.; *Prerequisite:* Agricultural Engineering 210A.) Stress, strain, resilience, elastic and plastic properties of materials; bending moment and shear force diagrams; bending and shear stress; deflections; simple, fixed and continuous beams, torsion and helical springs; reinforced concrete beams; columns, bending and direct stress; general case of plane stress; Mohr's circle. PROFESSOR MARQUIS

336-410B. INSTRUMENTATION AND CONTROL. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Agricultural Engineering 312A.) (Offered in alternate years, given in 1974-75.) Principles and operating characteristics of electrical transducers with emphasis on their application in agricultural process control and research. PROFESSOR NORRIS

336-411B. OFF-ROAD POWER MACHINERY. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Agricultural Engineering 211B.) (Offered in alternate years, given in 1973-74.) Mechanics of wheels and tracks; terrain vehicle mobility and soil trafficability; vehicle stability, steering forces and steering geometry; compression and spark ignition engines; fuels and lubricants, introduction to combustion. PROFESSOR McKYES

336-412A. AGRICULTURAL MACHINERY. (3 Credits; 3 lectures and 1 lab.) Study and analysis of machines for tillage, harvesting, crop processing and handling. Field tests, load studies, design requirements; design of machines and components for agricultural applications. PROFESSOR NORRIS

336-413B. MATERIALS HANDLING SYSTEMS. (3 Credits; 3 lectures; *Prerequisites:* Mathematics 201A and 203A or 203B.) (Offered in alternate years, given in 1974-75.) Systems and equipment for handling agricultural and food products. Introduction to work study methods and operations research. PROFESSOR MALIK

336-416B. ENGINEERING FOR LAND DEVELOPMENT. (3 Credits; 3 lectures and 1 lab.) (Offered in alternate years, given in 1974-75.) The engineering aspects of irrigation, drainage, erosion control and land clearing, water conservation, projects, dam and reservoir design and integrated development projects. PROFESSOR BROUGHTON

336-417B. SOIL MECHANICS AND FOUNDATIONS. (2 Credits; 2 lectures and 1 lab.) (Offered in alternate years; given in 1974-75.) Subsurface explorations methods, soil strength, settlement and consolidation, foundation stability, slope stability. PROFESSOR McKYES

336-419B. STRUCTURAL DESIGN. (3 Credits; 3 lectures and 1 lab.; *Prerequisites:* Agricultural Engineering 341B, Civil Engineering 213A.) Structural Design in Steel and Timber; Application of complete design procedures to buildings, beams, columns, tension members, wind bracing and roof trusses. Riveted, bolted, welded, nailed and glued connections; working stress design; plastic design for ultimate loading. PROFESSOR MARQUIS

336-490D. PROJECT. (3 Credits; 1 lecture.) Presentation of oral and written reports on approved Agricultural Engineering topics. Library and laboratory research will be required. PROFESSOR OGILVIE AND STAFF

Graduate courses available to undergraduates:

336-602A. ENVIRONMENT CONTROL IN AGRICULTURAL STRUCTURES. (3 Credits; 3 lectures and one 2 hr. lab.; *Prerequisites:* Mech. Engineering 040A, 246A.) (Offered in alternate years, given in 1973-74.) PROFESSOR MARQUIS

336-605A. FUNCTIONAL ANALYSIS OF MACHINES. (3 Credits; 3 lectures; *Prerequisites:* Agricultural Engineering 211B and 323A.) (Offered in alternate years, given in 1974-75.) PROFESSOR NORRIS

The following courses to be taken with the Faculty of Engineering, McGill Campus.

305-246A. HEAT TRANSFER. (3 Credits; 3 lectures and 1 hr. problems.)
or
302-211A. HEAT TRANSFER. (4 Credits; 3 lectures and 3 hrs. lab.)
303-211B. FLUID MECHANICS. (4 Credits; 3 lectures and 3 hrs. lab.)
or
305-230A. FLUID MECHANICS. (3 Credits; 3 lectures and 1 hr. lab.)

5.2 AGRICULTURE

330-211B. PRINCIPLES OF PLANT SCIENCE. (2 Credits; 3 lectures.) Plants as the basic food resource for man. The relation between plants and different segments of the ecosystem with respect to ability to manage the system. PROFESSORS TAPER AND.....

330-495D. SEMINAR AND ASSIGNMENT. (2 Credits; 1 lecture.) Preparation, presentation and discussion of reports upon approved agricultural subjects chosen in consultation with staff members of the departments concerned. PROFESSOR G. M. JONES

5.3 AGRONOMY

340-331A. CEREAL CROPS. (3 Credits; 3 lectures and 1 lab. period.) (Offered in alternate years, not given in 1973-74.) *Textbook: Cereal Crops,* by Leonard and Martin (Collier-Macmillan Ltd.) An intensive study of cereal crops (small grains, corn, etc.), including historical development, economic importance, botanical relationships, geographical distribution of types and cultivars; cultural practices in cereal crop production; quality factors associated with grading, processing and utilization of cereal crop products. PROFESSOR KLINCK

340-332B. INDUSTRIAL CROPS. (3 Credits; 3 lectures and 1 lab.) (Offered in alternate years, not given in 1973-74.) A study of temperate and subtropical crops grown for oil, fibre, sugar and other industrial products. Attention is given to historical development and economic importance, botanical types and cultivars, cultural practices, quality factors, grading, processing and utilization. PROFESSOR GENDRON

340-333A. FORAGE CROPS. (3 Credits; 3 lectures and 1 lab.) An intensive study of the scientific information available relevant to forage crop production. The plant materials will be studied from a morphological, physiological and ecological point of view. Cultural practices, seed production, conservation methods and quality evaluation will all be considered. PROFESSOR KEOGHAN

340-350A. EXPERIMENTAL METHODS IN AGRONOMY. (2 Credits; 8 days prior to Fall term.) A course designed to provide the student with practical knowledge of handling experimental plant materials in Agronomy. Practice in preparation and establishment of research plots in the field and in controlled environment rooms, recording and analysing data from crop measurements, harvesting and processing research materials, crop hybridization, preparation of reports. PROFESSOR KLINCK AND STAFF

340-434A. WEED BIOLOGY AND CONTROL. (3 Credits; 3 lectures and 1 lab.) The science of plants applied to those species called weeds. The biology of weeds as related to the principles of biological, physical and chemical control. PROFESSOR RILEY

340-435B. PLANT BREEDING. (3 Credits; 3 lectures and 1 lab.) Problems, methods and the interpretation of results, in the breeding and improvement of plants. PROFESSOR LAWSON

340-436B. CROP ADAPTATION AND DISTRIBUTION. (3 Credits; 3 lectures and 1 lab.) Factors influencing crop adaptation and their effect on distribution. PROFESSOR GENDRON

340-439A. FIELD MANAGEMENT. (3 Credits; 2 lectures and 1 lab.) Application of soil science and biology to crop production. Limiting factors to crop yields and treatments to overcome limitations. Use of fertilizers and manures, herbicides, crop rotation, tillage, drainage and irrigation, etc. to overcome limitations and to conserve soil productivity. PROFESSOR GENDRON

340-440B. SEED DEVELOPMENT. PRODUCTION AND ANALYSIS. (3 Credits; 2 lectures and 1 lab.) (Offered in alternate years. Given in 1973-74.) The development and life processes of seeds in relation to seed production, processing and storage. A study is made of seed characteristics and their utilization in seed separation, analysis and grading. Attention is given to seed marketing services, seed certification systems and seed laws. PROFESSOR KLINCK

340-490D. PROJECTS. (3 Credits; 1 lecture.) Directed study on an approved problem, requiring both oral and written presentation. U2 and U3 students must attend all oral presentations.
PROFESSOR KLINCK AND STAFF

5.4 ANIMAL SCIENCE

342-250A. PRINCIPLES OF ANIMAL SCIENCE. (2 Credits; 3 lectures.) Scientific principles underlying the livestock and poultry industries i.e., breeding, physiology, nutrition and disease — and their influence upon management practices. Emphasis is placed on the adjustment of environment to the animal.
PROFESSOR TOUCHBURN

342-301B. PRINCIPLES OF ANIMAL BREEDING. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Genetics 201A.) The qualitative and quantitative aspects of genetics as they apply to the economic improvement of domestic mammals and birds. Areas covered include: animal domestication, animal cytology, mendelian traits of economic importance, principles of population genetics, statistical tools to describe populations, environmental effects, selection and mating systems.
PROFESSORS KENNEDY AND BUCKLAND

342-311B. ANIMAL PATHOLOGY. (3 Credits; 3 lectures.) An introductory course of Animal Pathology. Includes discussion of causative agents, the development of the disease process, degenerative changes, protective mechanisms, factors influencing spread of disease and the control of disease.
DR. PROCTOR

342-321A. MAMMALIAN PHYSIOLOGY. (4 Credits; 3 lectures and 1 lab.; *Prerequisite:* Biology 202B.) A study of the functions of various organs in mammals including the nervous system, muscle, blood, the cardiovascular system, respiration, gastrointestinal and metabolic systems, urinary systems, the endocrine glands and the reproductive system.
PROFESSORS LAGUE AND R. D. BAKER

342-330A. FUNDAMENTALS OF NUTRITION. (3 Credits; 3 lectures and 1 lab.; *Prerequisites:* Chemistry 232A and 234B.) A discussion of the nutrients; water, carbohydrates, lipids, proteins, minerals and vitamins, with particular emphasis on their functions in and essentiality for the animal organism.
PROFESSOR HARTSOCK

342-331B. FUNDAMENTALS OF HUMAN NUTRITION. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Animal Science 330A.) Emphasis on applied quantitative aspects of human nutrition. Nutrient utilization, evaluation and requirements, as related to dietary standards.
PROFESSOR DONEFER

342-332B. APPLIED ANIMAL NUTRITION. (3 Credits; 3 lectures and 1 lab.) Classification of feedstuffs based on their function in rations; discussion of digestibility and utilization of nutrients, energy and nutrient requirements for maintenance, production and reproduction and integration of these into feeding programs for livestock and poultry.
PROFESSORS G. M. JONES, DONEFER AND HARTSOCK

342-422B. REPRODUCTIVE PHYSIOLOGY. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Animal Science 321A.) Comparative physiology of reproduction in laboratory and domestic animals. Hypothalamic, pituitary and gonadal interrelationships, synchronization of estrus, artificial insemination, livability of spermatozoa and ova "in vivo" and "in vitro", ova transplantation, prenatal and early post-natal development, and infertility problems are discussed.
PROFESSOR R. D. BAKER

342-424B. METABOLIC ENDOCRINOLOGY AND GASTRO-INTESTINAL PHYSIOLOGY. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Animal Science 321A.) A detailed study of the metabolic endocrine system and its role in the maintenance of homeostasis, and a detailed study of the physiology of digestion.
PROFESSOR LAGUE

342-432B. ADVANCED ANIMAL NUTRITION. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Animal Science 332B.) Critical discussion of criteria for nutritive evaluation of feed-stuffs, current practices and development of feeding programs, specific aspects of ruminant nutrition, discussion of feed additives.
PROFESSORS DONEFER, HARTSOCK AND G. M. JONES

342-440. ANIMAL PRODUCTS I — MILK AND MILK PRODUCTS. (3 Credits; 2 lectures and 1 lab.) A study of the formation, composition, chemistry and technology of milk and milk products. Analytical methods, processing procedures and market quality of milk and milk products.
PROFESSOR.....

342-441B. ANIMAL PRODUCTS II — MEAT AND MEAT PRODUCTS. (3 Credits; 2 lectures and 1 lab.) A study of the formation, composition, chemistry and technology of meat and meat products. Analytical methods, processing procedures and market quality of meat and meat products.
PROFESSOR.....

342-450A. DAIRY CATTLE PRODUCTION. (3 Credits; 3 lectures and 1 lab.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of milk and meat by dairy cattle. Recent developments in livestock production will be emphasized. Trips to dairy farms and related enterprises will comprise part of the laboratory work. PROFESSOR G. M. JONES

342-452A. BEEF CATTLE AND SHEEP PRODUCTION. (3 Credits; 3 lectures and 1 lab.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of beef and sheep. Trips to beef and sheep farms and related enterprises will comprise part of the laboratory work.
PROFESSOR HAMILTON

342-454B. SWINE PRODUCTION. (3 Credits; 3 lectures and 1 lab.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of swine. Trips to swine farms and related enterprises will comprise part of the laboratory work. PROFESSOR HARTSOCK

342-456B. POULTRY PRODUCTION. (3 Credits; 3 lectures and 1 lab.) The application of biological principles of genetics, physiology, nutrition and pathology, as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of poultry meat and eggs. Trips to poultry farms and related enterprises will comprise part of the laboratory work. PROFESSOR BUCKLAND

342-490D. PROJECT IN ANIMAL SCIENCE. (3 Credits.) A project to be completed under the supervision of a staff member of the Department of Animal Science. An agreement between student and the involved staff member must be reached prior to registration.
PROFESSOR BUCKLAND

Graduate courses available to undergraduates

G342-602D. ADVANCED ANIMAL BREEDING. (6 Credits.)

G342-632D. ADVANCED NUTRITION. (6 Credits.)

G342-650D. ADVANCED ANIMAL BIOCHEMISTRY. (6 Credits.)

5.5 BIOLOGY

344-200A. BIOLOGY OF ORGANISMS I. (3 Credits; 3 lectures and 1 lab.) The major taxonomic divisions of living organisms; the Protozoa with special reference to holozoic and saprozoic forms; animal embryology as an introduction to the Metazoa; a survey of the structure and biology of the major invertebrate phyla, with emphasis on animal parasites and entomology.
PROFESSOR McFARLANE

344-201B. BIOLOGY OF ORGANISMS II. (3 Credits; 3 lectures and 1 lab.) Comparative evolutionary review of the plant kingdom, excluding the angiosperms, except for the embryology and seed germination. Plant evolution, including some fossil genera, isotopic age determination, continental drift sequential evolution and telome theory. Pollination as a case study of plant evolution. MR. WOODLAND

344-202B. CELLULAR BIOLOGY. (3 Credits; 3 lectures and 1 demonstration.) The aim of this course is to develop a working concept of cellular biology in procaryotic and eucaryotic cells, including their interaction with viruses. This concept includes structure, function and replication of theoretical cell types with the emphasis on structure and structurally related function. Some examples of specialized cells are then provided to illustrate some of the differences between cell types. PROFESSORS DEVOE AND .....

344-205B. PRINCIPLES OF ECOLOGY. (3 Credits; 2 lectures and 1 conference.) This introductory course is designed to give the student an understanding of the interactions of organisms and the physical environment. Ecological principles will be discussed at the level of the individual, the population and the community.
PROFESSORS BIDER, KNOWLES AND STEWART

344-306B. BIOLOGICAL INSTRUMENTATION. (3 Credits; 2 labs.) Physical and chemical methods applied to biology including theory and practice of modern instrumentations as applied to pH, chromatography, spectroscopy, centrifugation, radioactivity and electrophoresis.
PROFESSORS PETERSON AND INGRAM

5.6 BOTANY

346-251A. PLANT HISTOLOGICAL AND CYTOLOGICAL METHODS. (3 Credits; 2 labs.) A laboratory lecture course dealing with methods for the study, measurement and reproduction of plant cells and tissues by various physico-chemical means, including microscopy and photography. PROFESSOR ESTEY

346-252B. PLANT ANATOMY AND HISTOLOGY. (2 Credits; 2 lectures and 1 lab.) A detailed study of cells, cell division, tissues and their development, and the general anatomy of vascular plants. PROFESSOR ESTEY

346-254B. PLANT MORPHOLOGY. (2 Credits; 2 lectures and 1 lab.) A comparative study of plant structure in fossil and living plants, with special emphasis on the higher plants. PROFESSOR WOODLAND

346-256A. SYSTEMATIC BOTANY. (4 Credits; 2 lectures and 2 labs.) Principles of classification and identification of vascular plants with special emphasis on those families of economic and practical importance; also an introduction to modern taxonomic methods. Field trips. PROFESSOR WOODLAND

346-353A. PLANT PHYSIOLOGY. (4 Credits; 3 lectures and 1 lab.) Respiration, photosynthesis, mineral nutrition, nitrogen nutrition, water relations, translocation of solutes, development and reproduction. PROFESSOR PELLETIER

346-355A, B. SPECIAL TOPIC IN THE BOTANICAL SCIENCES. (2 Credits; 1 conference.) A course of independent study by the student with the guidance of a person of recognized competence in the general area of the chosen topic. STAFF

346-451A. PLANT ECOLOGY. (3 Credits; 3 lectures and 1 lab.) A study of the major vegetation units; the influence of environmental factors on the evolution, distribution, and succession of plant communities, and on the distribution, form and function of plant species. Methods of ecological analyses. PROFESSOR WOODLAND

346-455A. SPECIAL TOPIC IN THE BOTANICAL SCIENCES. (2 Credits; 1 conference.) A course of independent study by the student with the guidance of a person of recognized competence in the general area of the chosen topic. STAFF

346-490D. PROJECT. (3 Credits; 1 lecture and 1 lab.) Each student is assigned a botanical problem entailing individual investigation, preparation of report in publication form, and oral presentation of scientific paper. STAFF

346-495D. SEMINAR. (1 Credit; 1 lecture.) (Plant Pathology and Botany.) Written and oral presentation of critical reviews of important topics and current research articles in Plant Pathology and Botany for group discussion. STAFF

5.7 CHEMISTRY

332-222B. INTRODUCTORY ANALYTICAL CHEMISTRY I. (3 Credits; 2 lectures and 1 lab.) An introduction to qualitative and quantitative analysis in the laboratory. The lecture material will deal with hydrolysis reactions, sampling techniques, preparation of samples for analysis and the theory of acidemetry. PROFESSOR HENNEBERRY

332-230A. ORGANIC CHEMISTRY I. (3 Credits; 3 lectures and 1 lab.) Fundamental concepts of organic chemistry; structure, nomenclature and properties of typical aliphatic and aromatic compounds, lipids, carbohydrates and proteins. Laboratory work includes exercises on recrystallization, distillation, extraction, chromatography and some simple organic preparations. PROFESSOR B. E. BAKER

332-231B. ORGANIC CHEMISTRY II. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 230A.) Introduction to organic synthesis and reactions of functional groups of aliphatic, aromatic and heterocyclic compounds. Basic concepts of S_N1 and S_N2 displacement reactions, resonance, geometrical and optical isomerism, free radicals and polarimetry. Laboratory work includes the preparation, purification and studies on the properties of several organic compounds. PROFESSOR R. E. BAKER

332-232A. BIOCHEMISTRY I. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Chemistry 230A.) The biological elements; chemical evolution and biogenesis; water; carbohydrates; lipids; amino acids and proteins; nucleotides and polynucleotides; enzymes. PROFESSOR COMMON

332-234B. BIOCHEMISTRY II. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Chemistry 232A.) Enzymology. Alimentary digestion and absorption of nutrients. Urinary and fecal excretion; detoxication mechanisms. Cellular anabolism and catabolism of carbohydrates, lipids and proteins. PROFESSOR COMMON

332-324A. QUANTITATIVE INORGANIC ANALYSIS. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 222B.) A continuation of the Quantitative methods introduced in Analytical Chemistry I. Course work will consist of discussions of and practical exercises in the use of redox titrations, ion exchange resins, potentiometric methods of analysis, colorimetry and atomic absorption. PROFESSOR HENNEBERRY

332-333A. CHEMICAL SYNTHESES AND LAB. TECHNIQUES. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 231B.) Principles of organic synthesis. Stress will be laid on laboratory procedures and methodology. PROFESSOR B. E. BAKER

332-339A. INTRODUCTORY PHYSICAL CHEMISTRY. (3 Credits; 3 lectures and 1 lab.) Introduction to kinetic theory, thermodynamics, properties of liquids and solids, chemical equilibrium and the law of mass action, phase rule, properties of solutions, surface and colloid chemistry, chemical kinetics, photochemistry, electrochemistry and radioactivity.
PROFESSOR ANASTASSIADIS

332-340B. ADVANCED PHYSICAL CHEMISTRY. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 339A.) An advanced course of thermodynamics, molecular structure, kinetics, properties of electrolytes, absorption and macromolecules. Quantum aspects of physical chemistry. PROFESSOR ANASTASSIADIS

332-434B. CHEMICAL STRUCTURE AND INSTRUMENTATION. (3 Credits; 2 lectures and 1 lab.); *Prerequisites:* Chemistry 333A, Mathematics 202A.) Modern concepts of atomic and molecular structures. Bond energies and reaction mechanisms. Determinations of purity and structure of chromatographic and spectrometric techniques.
PROFESSORS B. E. BAKER AND HENNEBERRY

332-451A. FOOD ANALYSIS I. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 232A.) Proximate analysis. Chemical examinations of sugars, starches, cereals, oil seeds, fat and fat products, fruits, dairy and meat products. Vitamins, food colours, flavours. Contaminants. Physiochemical methods used in food analysis.
PROFESSORS ANASTASSIADIS AND COMMON

332-452B. FOOD ANALYSIS II. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Chemistry 451A.) A specialized course on the principal analytical techniques used for analysis of carbohydrate, lipid, protein and vitamin constituents of foods and feedstuffs, and for detection and determination of chemical additives and contaminants.
PROFESSORS ANASTASSIADIS AND COMMON

5.8 COMMUNICATION ARTS

384-320B. INSTRUCTIONAL COMMUNICATION I. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Food Standards 376-210A.) The planning, presenting and evaluation of demonstration in foods, equipment and/or clothing. Video-tape will be used for self-evaluation. Students may develop topics of their choice with the instructor's approval. PROFESSOR V. SHIPLEY

384-452A. INSTRUCTIONAL COMMUNICATIONS II. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Psychology 301A.) Investigation of and experience in a variety of communication and presentation techniques for instructing groups and/or individuals. Students select subjects of interest with instructor's approval. PROFESSOR V. SHIPLEY

5.9 CONSUMER SERVICES

381-330A. CONSUMER EDUCATION I. (3 Credits; 3 lectures and 1 lab.) Role of the consumer in the economy, problems in modern buyer/seller relationships. PROFESSOR FERGUSSON

381-331B. CONSUMER EDUCATION II. (3 Credits; 3 lectures and 1 lab.) Management of financial and material resources. PROFESSOR FERGUSSON

5.10 ECONOMICS

334-200A. PRINCIPLES OF ECONOMICS. (3 Credits; 3 lectures.) The economics of the business firm and industry in a Canadian context. PROFESSOR MacFARLANE

334-201B. PRINCIPLES OF ECONOMICS. (3 Credits; 2 lectures; 1 conference; *Prerequisite:* Economics 200A or equivalent.) Continuation of Economics 200A: the economics of the individual business firm. Leads to analysis of private *vs* public accounting in the area of environmental protection. PROFESSOR MacFARLANE

334-230B. ECONOMICS OF MARKETING. (3 Credits; 3 lectures; *Prerequisites:* Economics 200A and 201B or equivalent.) Marketing problems of the major commodity sectors of Canadian agriculture. The agricultural marketing and food processing industries. Family income and expenditure patterns. Public policy in marketing. PROFESSOR MacFARLANE

334-231B. ECONOMICS OF AGRICULTURE. (3 Credits; 2 lectures; 1 conference; *Prerequisite:* Economics 200A or equivalent.) The economics of the Canadian farm industry. Structure and organization. Commodity sectors. Farm credit. Public policy. PROFESSOR MacFARLANE

334-240B. ECONOMICS OF MARKETING. (4 Credits; 4 lectures; *Prerequisite:* Economics 200A or equivalent.) Marketing problems of the major commodity sectors of Canadian agriculture. The agricultural marketing and food processing industries. Public policy in marketing. Family income and expenditure patterns. Plus supplementary work in general economics. PROFESSOR MacFARLANE

334-332A. FARM PRODUCTION ECONOMICS. (3 Credits; 3 lectures; *Prerequisite:* Economics 200A or equivalent.) The economics of farm production and farm management decisions. PROFESSOR MacFARLANE

334-333B. RESOURCE ECONOMICS. (3 Credits; 2 lectures; 1 conference; *Prerequisites:* Economics 200A and 201B or equivalent.) Economic principles applied to resources use, development and conservation. Applied to agricultural, forest, urban, water, air and energy resources. PROFESSOR .....

334-343B. RESOURCE ECONOMICS. (4 Credits; 3 lectures; 1 conference; *Prerequisite:* Economics 200A or equivalent.) Economic principles applied to resources use, development and conservation. Applied to agricultural, forest, urban, water, air and energy resources. Plus supplementary work in general economics. PROFESSOR .....

334-410A. LAND AND RESOURCE APPRAISAL. (3 Credits; 3 lectures; *Prerequisite:* 200A or equivalent.) Land and other resource appraisal with emphasis on valuation procedures; relationships of factor and product prices, taxes and interest rates to value. Critical evaluation of appraisal methods; benefit-cost analysis. PROFESSOR .....

334-490D. PROJECT AND SPECIAL PROBLEMS. (3 Credits.) PROFESSOR MacFARLANE AND .....

The following courses to be elected in the Faculty of Arts, Montreal Campus.

154-205A. AN INTRODUCTION TO APPLIED POLITICAL ECONOMY. (3 Credits.)

154-250D. INTRODUCTION TO ECONOMIC THEORY. (6 Credits.)

154-300A. INTERMEDIATE ECONOMIC THEORY. (3 Credits.)

154-302D. MONEY AND BANKING. (6 Credits.)

154-303D. INTERNATIONAL TRADE AND FINANCE. (6 Credits.)

154-304D. CANADIAN ECONOMIC POLICY. (6 Credits.)

154-307D. BUSINESS STATISTICS. (6 Credits.)

154-310B. INTERMEDIATE ECONOMIC THEORY. (3 Credits.)

154-313D. ECONOMIC DEVELOPMENT. (6 Credits.)

154-352D. MACROECONOMICS. (6 Credits.)

154-357D. ECONOMIC STATISTICS. (6 Credits.)

154-400D. ECONOMIC ANALYSIS. (6 Credits.)

154-423D. INTERNATIONAL TRADE AND FINANCE. (6 Credits.)

154-425D. ECONOMICS OF ECOLOGY. (6 Credits.)

154-453D. INTERNATIONAL ECONOMICS. (6 Credits.)

5.11 ENGLISH

348-310B. STUDIES IN THE MASS MEDIA. (3 Credits; 3 lectures.) An exploration of the uses and abuses of language in such modern communication media as newspapers, magazines and advertising. In addition, the course will study McLuhan and the devices of semantics and logic, particularly as they apply to the appraisal of the mass media. PROFESSOR GODFREY

348-330A. TECHNICAL AND RESEARCH WRITING. (3 Credits; 1 lecture and 1 lab.) A practical course in scientific writing with emphasis on basic writing competence and the techniques of clear exposition. In addition, study will be made of certain scientific articles and essays and the means by which they stimulate interest and attention. PROFESSOR GODFREY

348-343A. THE SHORT STORY. (3 Credits; 3 lectures.) A study and discussion of representative short stories with particular reference to their theme and techniques. PROFESSOR GODFREY

5.12 ENTOMOLOGY

350-330A. GENERAL ENTOMOLOGY. (3 Credits; 3 lectures and 1 lab.) An introduction to insect structure, physiology, development, evolution and ecology; edge-punched cards are used to store information about the orders of insects and about representative pest species; a systems approach is used to design effective pest control. DR. HILL

350-331A. INSECT MORPHOLOGY I. (3 Credits; 2 lectures, 1 lab. and project.) (Offered in alternate years; given in 1973-74.) A course discussing in depth the morphology of the integument and associated organs of insects and relating structure to function. PROFESSOR STEWART

350-332B. INSECT MORPHOLOGY II. (3 Credits; 2 lectures, 1 lab. and project; *Prerequisite:* Entomology 331A.) (Offered in alternate years; given in 1973-74.) A course discussing in depth the morphology of the internal organs, sense organs and development of insects and relating structure to function. PROFESSOR STEWART

350-333A. INVERTEBRATE PHYSIOLOGY I. (3 Credits; 2 lectures, 1 lab. and project.) (Offered in alternate years; given in 1973-74.) Comparative physiology with special reference to invertebrates, particularly insects. Topics of more general physiological interest are considered, including respiration, nutrition, digestion, excretion, circulation and endocrinology. PROFESSOR McFARLANE

350-334B. INVERTEBRATE PHYSIOLOGY II. (3 Credits; 2 lectures, 1 lab. and project; *Prerequisites:* Entomology 330A and 333A.) (Offered in alternate years; given in 1973-74.) Topics of special interest in insect physiology, including the integument, the special senses, nerve and muscle, flight, orientation reactions and circadian rhythms. Current literature in insect physiology is read and discussed by the students. PROFESSOR McFARLANE

350-440B. SYSTEMATIC ENTOMOLOGY. (3 Credits; 1 lecture, 1 lab. and project; *Prerequisite:* Entomology 330A.) (Offered in alternate years; given in 1974-75.) The classification of the principal orders, suborders and super-families of insects; use of keys; collecting methods. PROFESSORS KEVAN AND VICKERY

350-442A. ARACHNIDA AND OTHER TERRESTRIAL ARTHROPODS. (3 Credits; 3 lectures, 1 lab.; *Prerequisite:* Biology 200A.) (Offered in alternate years; given in 1974-75.) The morphology, biology and general systematics of land arthropods other than true insects with special emphasis on those living on the ground and in the soil; some parasitic and other forms are also considered. Parathropods, land crustaceans, millipedes, centipedes, collembolans, scorpions, spiders, mites, ticks, etc. PROFESSOR KEVAN AND DR. HILL

350-444B. SOIL FAUNA ECOLOGY. (3 Credits; 3 lectures, 1 lab.; *Prerequisite:* Biology 204B.) (Offered in alternate years; given in 1974-75.) Introduction to the fauna of soil and litter, its biology, ecology and role in soil formation and amelioration; particular attention is paid to certain groups of worms and insects and especially to collembola and mites; methods of sampling, extraction, and identification. PROFESSOR KEVAN AND DR. HILL

350-452A. ECONOMIC ENTOMOLOGY I. (3 Credits; 3 lectures; *Prerequisite:* Entomology 330A.) A survey of non-chemical pest controls and why these succeed; control methods under investigation, integrated control, problems of application and degree of success; physical, cultural and biological methods including genetic and the sterile male techniques. Laboratory work consists of studies of organisms now effectively managed by non-chemical methods. PROFESSOR MORRISON

350-453A. ECONOMIC ENTOMOLOGY II. (3 Credits; 3 lectures; *Prerequisite:* Entomology 330A.) A survey of the chemicals used in pest control, their characteristics, the hazards posed, their legal status, their effectiveness, pollution problems and techniques for safe and effective use. PROFESSOR MORRISON

350-454A. PEST INSECTS. (3 Credits; 2 lectures, 1 lab.) A survey of important pest insects of the world, their current status and control. Each species will be taken as representative of a taxonomic group of real or potential pests. Interrelations of life-histories, biology, importance and control will be stressed. PROFESSOR MORRISON

350-490D. PROJECTS. (3 Credits; 1 lab.) A problem involving literature and private investigation will be allotted to each student taking this course. STAFF

5.13 EXTENSION METHODS

352-300A. COMMUNICATIONS — EXTENSION METHODS. (3 Credits; 2 lectures and 1 lab.) A discussion course in rural sociology, communications theory; program building; leadership training; group dynamics; instruction in communication skills, writing, radio, T.V. PROFESSOR BACHMAN

352-301B. COMMUNITY DEVELOPMENT. (3 Credits; 2 lectures and 1 lab.) The principles and processes of area resource development will be studied by readings, lectures, group discussions and case studies. Guest lecturers from organizations and agencies involved in community resource development will be invited to participate. PROFESSOR BACHMAN

5.14 FOOD AND CONSUMER SCIENCES

377-200A. PERSPECTIVES IN FOOD SCIENCE. (3 Credits; 3 lectures, 1 conference.) A survey of the interrelationships of the major disciplines concerned in Food Science Studies. Involved staff members and guests will discuss the processing and handling of foods for humans, including public health regulations, food additives, toxic contaminants, human nutrition, and the world food outlook. PROFESSOR NEILSON AND STAFF

377-490D. FOOD AND CONSUMER SCIENCES PROJECT I. (3 Credits.) A project involving a review of the literature, experimental work and submission of a report. Assigned to students in their final year. COORDINATOR, MAJOR PROFESSOR, STAFF

377-491D. FOOD AND CONSUMER SCIENCES PROJECT II. (5 Credits.) A project involving a review of the literature, experimental work and submission of a report. Assigned to students in their final year. COORDINATOR, MAJOR PROFESSOR, STAFF

377-495D. FOOD AND CONSUMER SCIENCES SEMINAR I. (1 Credit.) Oral presentation of a selected topic within the field of Food and Consumer Sciences.

377-496D. FOOD AND CONSUMER SCIENCES SEMINAR II. (2 Credits.) Oral presentations of selected topics within the field of Food and Consumer Sciences.

377-497D. FOOD AND CONSUMER SCIENCES SEMINAR III. (3 Credits.) Oral presentations of selected topics within the field of Food and Consumer Sciences.

5.15 FOODS

376-210A. FOOD STANDARDS. I. (3 Credits; 3 lectures and 1 lab.) Introduction to the principles and practices involved in selection, preparation and conversion of food. Development of awareness and recognition of food quality standards. PROFESSOR FERGUSSON

376-211B. FOOD STANDARDS. II. (3 Credits; 3 lectures, 1 lab.; *Prerequisite:* Foods 210A.) Application of the principles and practices involved in quality food production. PROFESSOR FERGUSSON

376-312A. ADVANCED FOODS. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Foods 210A.) The study of uncommon foods and their preparation. The gourmet preparation of foods appropriate to all courses of the formal menu. An understanding of meal management including planning, preparation, service and evaluation. Library research and the interpretation of food in relation to cultural, historical, sociological, economic or other factors. PROFESSOR.....

376-413B. PRODUCT DEVELOPMENT. (3 Credits; 3 lectures and 1 lab.) (Given in 1973-74.) Representatives from food industry will present research procedures used to develop new products. Students will prepare a report on the development of a new product, incorporating an analysis and evaluation of the production, processing equipment and sanitation requirements and a summary of consumer acceptance and market feasibility of the product. PROFESSORS IDZIAK AND RAYMOND

5.16 FRENCH

354-200A, B. FRENCH. (3 Credits; 3 lectures.) Practice in French for students who expect to work in Quebec Province: preparatory work for postgraduate students who intend to meet second language requirements in French. Emphasis will depend on needs of students enrolled. MRS. GEROLS

354-300A, B. TECHNICAL FRENCH. (3 Credits; 3 lectures; *Prerequisite:* French 200A or B or equivalent.) An introduction to the language of Agriculture and Food Science. Oral practice and translation — topics will be selected in function of students' requirements. MRS. GEROLS

354-301A. TECHNICAL TRANSLATION. (3 Credits; 3 lectures; *Prerequisite:* French 200A or B or equivalent.) Translations and summaries of technical texts from French to English. Topics will be selected from material related to the students' own field of studies. MRS. GEROLS

354-302B. INTRODUCTION TO FRENCH CANADIAN LITERATURE. (3 Credits; 3 lectures; *Prerequisite:* French 200A or B or equivalent.) A survey of French Canadian Literature and Civilization. Study of two novels and a play by modern French Canadian writers. This course will be conducted in French. MRS. GEROLS

5.17 GENETICS

356-201A. INTRODUCTION TO GENETICS. (3 Credits; 3 lectures and 1 lab.) The modern concepts of genetics are presented so that present and future developments in biology may be understood and appreciated. PROFESSOR LAWSON

356-202B. ADVANCED GENETICS. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Genetics 201B.) A detailed study of the genetic material, gene action, and population genetics. PROFESSOR LAWSON

356-203A. HEREDITY, EVOLUTION AND SOCIETY. (3 Credits; 3 lectures.) Inheritance, variation and evolution in plants, animals and man. Social implications of genetics and evolution. PROFESSOR LAWSON

Graduate courses available to undergraduates

Biology 177-670A *or* 177-770A. CYTOLOGY.
Biology 177-671B *or* 177-771B. CYTOGENETICS.
Biology 177-672B *or* 177-772B. MICROBIAL GENETICS.
Biology 177-673A *or* 177-773A. MUTAGENESIS AND RADIATION BIOLOGY.
Biology 177-675B *or* 177-775B. STATISTICAL METHODS IN GENETICS.

5.18 HOME ECONOMICS

378-331B. FAMILY MANAGEMENT. (Given in 1974-75.) (3 Credits; 3 lectures and 1 lab.; *Prerequisites:* Foods 376-211B and Consumer Services 381-331B.) The importance of family values in the management processes and their application in the optimum use of family resources. Application of these principles in the home management house on Campus and in the community. PROFESSOR V. SHIPLEY

378-332A. FAMILY LIVING — DEVELOPMENT. (3 Credits; 3 lectures and 1 conf.; *Prerequisite:* Sociology 230A or Psychology 301A.) A study of the development of the individual in the family from birth to old age. The recognition and understanding of variations in developmental environment and human potential. PROFESSOR V. SHIPLEY

378-333B. FAMILY LIVING — RELATIONSHIPS. (3 Credits; 3 lectures and 1 conf.; *Prerequisite:* Sociology 230A or Psychology 301A.) An understanding of the role of the family in society. The interaction and interrelationships of family members of varying ages. An analysis of various family structures and problems. PROFESSOR V. SHIPLEY

378-334B. FAMILY LIVING II — RELATIONSHIPS. (3 Credits; 3 lectures, 1 conference; *Prerequisites:* Sociology 230A or Psychology 301A). The role, function and dynamics of the family in society. The family life cycle and the interrelationship of family members at various ages. An analysis of various family structures and problems. PROFESSOR V. SHIPLEY

5.19 HORTICULTURE

358-332D. LANDSCAPE ARCHITECTURE. (3 Credits; 1 lab.; *Prerequisite:* Agricultural Engineering 214E.) (Offered in alternate years, given in 1973-74.) Description, characteristics, and identification of ornamental plants, nursery practices and care of plant material. A brief history of gardens and architecture. Landscape design, plans, sketches, drafting, and construction specifications, as applied to rural and urban homes, estates, parks and playgrounds, etc. MR. PERRON

358-335B. FLORICULTURE. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Botany 353A.) (Offered in alternate years, given in 1974-75.) Construction and equipment of greenhouse and related structures. Principles involved in the propagation of all horticultural plants. Production of florists' crops including harvesting, storage and marketing, as well as costs of production and distribution. MR. WIGDOR

358-338A. POMOLOGY I. (3 Credits; 2 lectures and 1 lab.) Small fruits. The biology of small fruit species, and the technology of small fruit production; major aspects, significant research, recent advances. PROFESSOR TAPER

358-339B. POMOLOGY II. (3 Credits; 2 lectures and 1 lab.) Orchard Fruits. The biology of orchard species, and the technology of tree fruit production; major aspects, significant research, recent advances. PROFESSOR TAPER

358-430A. VEGETABLE PHYSIOLOGY I. (3 Credits; 2 lectures and 1 lab.) Application of plant physiology and other sciences to the production of vegetable crops. Original literature is used to illustrate the principles involved. Crops discussed include: tomato, pepper, eggplant, cucumber, muskmelon, squash, pumpkin, beans, peas, sweet corn, asparagus and rhubarb. Selected vegetable crops are grown by students in the laboratory to amplify lecture topics. PROFESSOR BIBLE

358-431B. VEGETABLE PHYSIOLOGY II. (3 Credits; 2 lectures and 1 lab.) Application of plant physiology and other sciences to the production of vegetable crops. Original literature is used to illustrate the principles involved. Crops discussed include: lettuce, celery, cabbage, brussels sprouts, cauliflower, broccoli, kale, radish, spinach, beet, onion, carrot, and potato. Selected vegetable crops are grown by students in the laboratory to amplify lecture topics. PROFESSOR BIBLE

358-443A. STORAGE AND HANDLING OF HORTICULTURAL CROPS. (3 Credits; 2 lectures and 1 lab.) The post-harvest chemistry and physiology of horticultural crops as they affect quality and marketability; handling methods at and after harvest; principles and practices in precooling, storage, transportation and packaging. PROFESSOR DAVID

358-444B. FRUIT AND VEGETABLE PROCESSING. (3 Credits; 2 lectures and 1 lab.) The principles and practices of food processing with emphasis on canning, freezing and dehydration, survey of the newer methods of food preservation such as the use of radiation and antibiotics; quality control, grading and sanitation are discussed. PROFESSOR DAVID

358-495D. SEMINAR. (2 Credits; 1 lab.) PROFESSOR TAPER AND STAFF

5.20 INSTITUTIONAL ADMINISTRATION

380-343A. ACCOUNTING AND COST CONTROL. (3 Credits; 2 lectures.) Introduction to basic accounting principles and practices; preparation and use of financial statements, ratio comparisons. Cost control programs for food operations. PROFESSOR RAYMOND

380-345B. FOOD FACILITY LAYOUT PLANNING AND EQUIPMENT. (3 Credits; 3 lectures.) Menu analysis for space and equipment determination. Planning for efficiency, sanitation and safety in layout construction, and equipment. Equipment specification. PROFESSOR RAYMOND

380-441B. FOOD SERVICE PRODUCTION MANAGEMENT. (3 Credits; 1 lecture and 2 labs.) Developing quantity food standards, food purchasing specifications, recipe formulation, menu construction, organization and scheduling of production, use of quantity equipment. PROFESSOR RAYMOND

380-442A. ORGANIZATION AND MANAGEMENT. (3 Credits; 3 lectures.) Functions of a manager; modified techniques of scientific management and their place as management tools in food production and service operations. PROFESSOR RAYMOND

380-444A. PERSONNEL MANAGEMENT I. (3 Credits; 3 lectures.) The fundamentals of organizational behaviour, employee development and the leadership role. PROFESSOR NEILSON

380-445B. PERSONNEL MANAGEMENT II. (3 Credits; 3 lectures.) Organizational environment and the management of people at work. The nature of collective bargaining, the roles of unions and management. PROFESSOR NEILSON

5.21 MANAGEMENT (McGill Campus)

280-221A. BEHAVIOURAL SCIENCE. I. (3 Credits.) An introduction to social psychology. Method and theories of analysing individual and small group behaviour. Topics include person perception, social motivation, attitudes, conformity, group structure, group dynamics and leadership phenomena. Experimental approach to social and organizational behaviour is emphasized. PROFESSOR KANUNGO

280-222B. BEHAVIOURAL SCIENCE. II. (3 Credits.) An introduction to Organizational Behaviour. The social psychology of organizations, the relationship of man to the organization in which he works, his motivation, attitudes and involvement in his work. Theories of perception, motivation and leadership as they relate to organizational problems. PROFESSOR KANUNGO

280-323A, B. BEHAVIOURAL SCIENCE. III. (3 Credits.) An introduction to organizational theory. The organization as a unit of analysis. Analysis of organizations as distinctive collectivities through an understanding of theories and problems of organization. Contributions of psychology, sociology and economics towards solving organizational problems of adaptation, authority and power, conflict resolution, etc.

5.22 MATHEMATICS

360-201A, B. STATISTICAL METHODS I. (3 Credits; 3 lectures, 2 labs.) Measures of central tendency and dispersion; normal distribution; estimation and testing hypotheses; analysis of variance for simple experimental designs; regression and correlation; binomial, chi-square and Poisson distribution; non-parametric tests. PROFESSOR FANOUS

360-202A. CALCULUS. (3 Credits; 3 lectures.) Partial differentiation; multiple integrals; vector calculus; infinite series. PROFESSOR BARTHAKUR

360-203A, B. DIGITAL COMPUTING I. (3 Credits; 3 lectures.) Introduction to Fortran Programming; numerical and non-numerical application of computers; computer oriented mathematics. PROFESSOR BURRAGE

360-204A. LINEAR ALGEBRA. (3 Credits; 3 lectures.) Linear equations; vectors in R^n and C^n; linear transformations; matrices; vector spaces and subspaces; bases and dimensions; determinants; eigenvalues and eigenvectors. PROFESSOR MALIK

360-205B. DIFFERENTIAL EQUATIONS. (3 Credits; 3 lectures; *Prerequisite:* Mathematics 202A.) Ordinary differential equations with constant coefficients; techniques for solution; introduction to partial differential equations; separation of variables; applications of differential equations to biological, chemical, and physical problems. PROFESSOR SCHUEPP

360-206A. MATHEMATICAL METHODS IN ECOLOGY. (3 Credits; 3 lectures.) An introduction to mathematical tools used in building models of biological and ecological systems. These include probability theory, set theory, vector and matrix algebra, differential and difference equations. PROFESSORS BARTHAKUR AND SCHUEPP

360-301A. NUMERICAL METHODS. (3 Credits; 3 lectures; *Prerequisite:* Mathematics 202A.) Numerical solution of equations, finite differences, interpolation, matrix algebra, linear programming, practice and instruction on the digital computer. PROFESSOR SCHUEPP

360-303B. DIGITAL COMPUTING II. (3 Credits; 3 lectures; *Prerequisite:* Mathematics 203A.) More advanced Fortran, including the use of magnetic tapes and disks. Further applications of computers in simulation, linear programming, critical path techniques. An introduction to assembly language and computer organization. PROFESSOR BURRAGE

360-401A. MATHEMATICAL STATISTICS I. (3 Credits; 3 lectures; *Prerequisite:* Mathematics 202A.) Probability; random sampling; mathematical models; basic concepts of estimation and testing hypotheses; frequency distributions. PROFESSOR FANOUS

360-402B. MATHEMATICAL STATISTICS II. (3 Credits; 3 lectures; *Prerequisite:* Mathematics 401A.) Correlation and regression; principles of testing hypotheses and estimation; small sample distributions; simple experimental designs; stratified sampling; sequential analysis. PROFESSOR FANOUS

5.23 MICROBIOLOGY

362-230B. THE MICROBIAL WORLD. (3 Credits; 3 lectures and one lab.) Natural occurrence and importance of microorganisms (especially bacteria) in relation to man. Principles governing their growth and metabolic activities as illustrated by nutrient cycles, and by soil, water, and food microbial populations. Microorganisms as agents of disease and the principles of immunity and chemotherapy. PROFESSOR MacLEOD AND STAFF

362-331B. MICROBIAL ECOLOGY. (3 Credits; 3 lectures and one lab.) A detailed study of microorganisms in the food, animal, soil, fresh water and marine environments. Population regulation in pure and mixed cultures and in natural communities in homogeneous and discontinuous environments. Principles of biochemical ecology in relation to biodeterioration, pollution, biogeochemical cycles. PROFESSOR KNOWLES AND STAFF

362-338B. PHYSIOLOGY OF MICROORGANISMS. (3 Credits; 3 lectures and one lab.) Principles of Microbial Physiology including cell structure, growth, nutrition, intermediary metabolism, catabolic and anabolic reactions. The laboratory includes isolation, induction and assay of selected enzymes plus special individual projects to illustrate various aspects of physiology. PROFESSOR INGRAM AND STAFF

362-340A. PATHOGENIC MICROBIOLOGY AND EPIDEMIOLOGY. (3 Credits; 3 lectures and one lab.) A survey of the principal pathogenic microorganisms causing disease in man, factors involved in pathogenicity, host responses to infection, epidemiology and control. Viral, fungal and bacterial diseases will be considered, with greater emphasis on the latter. PROFESSOR DEVOE

362-436D. FRONTIERS IN MICROBIOLOGY. (3 Credits; 1 lecture.) This course involves the preparation of a comprehensive term paper based on a search of the literature on a topic assigned to include an area of recent development new to the student. STAFF

362-437D. FRONTIERS IN MICROBIOLOGY. (1 Credit; irregular meetings.) This course involves the preparation of a comprehensive term paper based on a search of the literature on a topic assigned to include an area of recent development new to the student. STAFF

362-438A. IMMUNOLOGY. (3 Credits; 2 lectures and one lab.) A review of the host defence mechanisms with particular reference to antigen-antibody reactions. The nature of antigens and antibodies, the mechanism of antibody formation, polymorphism, hypersensitivity and transplantation are discussed. PROFESSOR.....

362-442A. FOOD MICROBIOLOGY AND SANITATION. (3 Credits; 2 lectures and 1 lab.) Consideration of microorganisms, and their products, of importance to the food industry. These will be discussed in terms of production of foods, preservation and processing of foods, facility sanitation and waste disposal, potential for causing food poisoning outbreaks. PROFESSOR IDZIAK

362-491D. PROJECT. (3 Credits; 1 lab.) A project involving laboratory work. May be elected by any final year students other than Microbiology Major. STAFF

362-492D. PROJECT. (5 Credits; 3 labs.) A project involving laboratory work assigned each Microbiology Major student in his final year. STAFF

362-495D. SEMINAR. (3 Credits; equivalent of 1 lecture.) STAFF

Graduate courses available to undergraduates

362-760D. TOPICS IN MICROBIAL PHYSIOLOGY. (6 Credits; 2 lectures.) Not given in 1973-74. PROFESSOR INGRAM AND STAFF

362-761D. SOIL MICROBIOLOGY. (6 Credits; 2 lectures.) PROFESSOR KNOWLES

362-762D. MICROBIAL BIOCHEMISTRY. (6 Credits; 2 lectures.) PROFESSOR MACLEOD

5.24 NUTRITION AND DIETETICS

382-212B. BASIC NUTRITION. (3 Credits; 3 lectures.) The scientific basis for the dietary recommendations for energy, protein, minerals and vitamins for infants, humans. For students who wish to take a single course in human nutrition. PROFESSOR FARMER

382-305B. NORMAL HUMAN NUTRITION. (3 Credits; 3 lectures; *Prerequisite:* Animal Science 330A or Nutrition and Dietetics 212B.) Study of normal nutrient requirements of humans in pregnancy and lactation and during infancy, childhood and adolescence. The needs of the elderly and of non-hospitalized patients suffering from allergies, obesity, anemia and dental caries, will be included. A special section will deal with world problems in nutrition. PROFESSORS FARMER AND MACONOCHIE

382-435B. APPLIED HUMAN NUTRITION. (3 Credits; 3 lectures; *Prerequisite:* Animal Science 330A.) Lectures in body composition, nutritional status, parasites in food, natural toxicants in plants and world food problems. Class projects include carrying out different types of dietary surveys and presenting these in class. Experience in teaching nutrition and budgeting to a family or group. PROFESSORS FARMER AND MACONOCHIE

382-441A. DIET THERAPY I. (3 Credits; 2 lectures and 1 lab.; *Prerequisites:* Animal Science 330A and 331B.) Dietary modification in treatment of pathological conditions including gastro-intestinal, metabolic, circulatory and renal disorders. PROFESSOR MACONOCHIE

382-442B. DIET THERAPY II. (3 Credits; 2 lectures and 1 lab.; *Prerequisites:* Nutrition and Dietetics 441A.) Seminar in which recent developments in dietetics are presented and discussed by the students. Lectures in hospitals and visits to clinics and hospital dietary departments. Laboratory periods for the preparations of special diets. PROFESSOR MACONOCHIE

5.25 PHYSICS

338-201A. INTRODUCTORY METEOROLOGY. (3 Credits; 3 lectures.) The atmosphere — its properties (structure), motion (geotrophic, cyclostrophic), and thermodynamics (stability, dry and moist). Clouds and precipitation. Air masses and forecast; synoptic analysis. Radiation and the global radiation budget; large-scale wind systems. Physical basis of climate.
PROFESSOR DOUGLAS

338-301B. BIOTHERMODYNAMICS. (3 Credits; 3 lectures and 1 conference.) The laws of thermodynamics and their application to living systems.
PROFESSOR BARTHAKUR

338-303A. PRINCIPLES OF ATOMIC AND NUCLEAR PHYSICS. (3 Credits; 3 lectures and 1 conference.) This course deals with contributions made by the 20th century physical sciences towards understanding of the atomic concept; classical and quantum-mechanical models of molecules, atoms and nuclei; wave- and corpuscular-theory of electromagnetic radiation; particle-wave duality; natural and artificial radioactivity.
PROFESSOR SCHUEPP

338-307B. ATMOSPHERIC PHYSICS. (3 Credits; 3 lectures and 1 conference.) Atmospheric radiation (black body, solar, terrestrial), thermodynamics (dry and moist air). Global radiation budget. Nucleation, condensation, precipitation. Atmospheric electricity. Turbulence and diffusion.
PROFESSOR DOUGLAS AND STAFF

338-308B. BIOMETEOROLOGY. (3 Credits; 3 lectures and 1 conference; *Prerequisite:* Physics 201A or 307B.) Radiative, convective and evaporative energy exchange on the microscale. Applications to ground, crop and forest, to individual members of the plant/forest community, and to animals. Plants and animals as radiators, convectors, evaporators. Hazards (heat loads, frost, etc.). Growing-degree-days, and other integrative indicators.
PROFESSOR DOUGLAS AND STAFF

338-404B. RADIATION BIOPHYSICS. (3 Credits; 3 lectures.) Electromagnetic radiation; interaction of radiation with matter; radiation dosimetry; biological effects of ionizing radiation; target theory; principles of radiation protection; bioluminescence; biological action of light; x-ray diffraction of protein and nucleic acids. (This is intended to be an interdisciplinary course, with some lectures supplied by the Biologists.)
PROFESSOR SCHUEPP AND GUEST LECTURERS

338-405B. ELEMENTARY TRACER TECHNIQUES. (3 Credits; 3 lectures and 1 lab.; *Prerequisite:* Physics 303A.) Operation and theory of various radiation detectors; ionization chambers, G-M counter, proportional counter, solid and liquid scintillation counters, and autoradiography; counting statistics, measurements of environmental radioactivity; practice of radiological safety.
PROFESSOR BARTHAKUR

5.26 PLANT PATHOLOGY

366-301B. INTRODUCTORY MYCOLOGY. (3 Credits; 2 lectures and 1 lab.) A lecture and laboratory course dealing with elements of the biology and physiology of fungi; their cultural characteristics and the identification of selected species.
PROFESSOR ESTEY

366-355A, B. SPECIAL TOPIC IN PLANT PATHOLOGY. (2 Credits; 1 conference.) A course of independent study by the student, guided by a plant pathologist who has specialized in the general area of the chosen topic.
STAFF

366-402A. GENERAL PLANT PATHOLOGY. (3 Credits; 2 lectures and 1 lab.) A study of common diseases, with emphasis on disease expression, causation, ecology, and principles underlying plant disease control. An introduction to methods of studying plant diseases in the laboratory and field.
PROFESSOR VISWANATHAN

366-403B. DISEASES OF FIELD AND FOREST CROPS. (2 Credits; 3 lectures and 1 lab.; *Prerequisite:* Plant Pathology 402A.) (Offered in alternate years. Given in 1973-74.) The distribution, economic importance, symptoms, causes, and principles underlying control of diseases of major field and forest crops.
PROFESSOR VISWANATHAN

366-404B. DISEASES OF HORTICULTURAL CROPS. (3 Credits; 2 lectures and 1 lab.; *Prerequisite:* Plant Pathology 402A.) (Offered in alternate years. Given in 1974-75.) The distribution, economic importance, symptoms, causes, and principles underlying control of diseases of major horticultural crops.
PROFESSOR SACKSTON

366-405A. INTERMEDIATE MYCOLOGY. (3 Credits; 2 lectures and 1 lab.) A lecture and laboratory study of the higher fungi, and others of general interest or importance, that are not dealt with in the introductory course.
PROFESSOR ESTEY

366-406A. VIROLOGY. (3 Credits; 2 lectures and 1 lab.) A study of the viruses affecting animals, bacteria and plants, with main emphasis on the chemical and physical properties of viruses; virus infection; and virus epidemiology. Laboratory culture of viruses, their isolation, and characterization by chemical and physical methods. PROFESSOR PETERSON

366-490D. PROJECT. (3 Credits; 1 lecture and 1 lab.) Each student is assigned a plant pathological or botanical problem entailing individual investigation, preparation of a report in publication form, and oral presentation of a scientific paper. STAFF

366-495D. SEMINAR. (1 Credit; 1 lecture.) Written and oral presentation of critical reviews of important topics and current research articles for group discussion. STAFF

Graduate courses available to undergraduates by permission

366-607B. PLANT VIRUS DISEASES. (3 Credits; 2 lectures and 1 lab.) PROFESSOR PETERSON

366-680A. NEMATOLOGY. (3 Credits; 2 lectures and 1 lab.) PROFESSOR ESTEY

366-681B. NEMATODE DISEASES OF PLANTS. (3 Credits; 2 lectures and 1 lab.) PROFESSOR ESTEY

5.27 POLITICAL SCIENCE (McGill Campus)

160-211D. INTRODUCTION TO COMPARATIVE GOVERNMENT. (6 Credits; This course is normally a prerequisite for all upper level courses in Comparative Politics.) An introduction to the theory and practice of modern government. PROFESSOR METCALFE

5.28 PSYCHOLOGY

368-301A. PSYCHOLOGY. (3 Credits; 3 lectures.) A study of the general characteristics of physical, social, emotional and intellectual development, the psychology of learning, and the growth and development of personality with special emphasis on the problems of adolescence.

5.29 RENEWABLE RESOURCES DEVELOPMENT

375-200B. CONSERVATION. (3 Credits; 3 lectures.) An ecological, economic, ethical and political evaluation of man's effect on his environment and the ultimate values of his ingenuity and present rate of progress. PROFESSOR TITMAN

375-211A. HISTORY AND PHILOSOPHY OF RESOURCE DEVELOPMENT. (3 Credits; 3 lectures.) History and objectives of public and private endeavours which have established the development patterns of land settlement, transportation, highways, waterways, forests and the utilization of our resources. PROFESSOR BACHMAN AND OTHER STAFF

375-300A. RENEWABLE RESOURCES. (3 Credits; 3 lectures.) The production, exploitation, and utilization of agricultural, forestry, fisheries and wildlife resources. The geography of the resources as well as the populations which exploit them and the markets which consume them. PROFESSOR TITMAN AND OTHER STAFF

375-331A. PHYSICAL AND BIOLOGICAL ASPECTS OF POLLUTION I. (3 Credits; 3 lectures.) The environmental contaminants which cause pollution; sources, amounts and transport of pollutants in water, air and soil; pollution and ecology; genetic effects of pollutants. PROFESSOR WARKENTIN AND OTHERS

375-332B. PHYSICAL AND BIOLOGICAL ASPECTS OF POLLUTION II. (3 Credits; 3 lectures.) Specific pollutants such as pesticides, noise, radioactivity and thermal pollution; disposal of domestic, industrial and animal wastes; economic and social aspects of pollution control. PROFESSOR WARKENTIN AND OTHERS

375-400A. FISHERIES AND WILDLIFE. (3 Credits; 3 lectures, 1 lab. and one week field laboratory prior to fall term.) An overview of fisheries and wildlife research development and management, particularly in Canada, including an outline of the organizations which are responsible for and carry out the work, and the interactions between resource development and fisheries and wildlife. PROFESSOR TITMAN

375-410B. WILDLIFE ECOLOGY. (3 Credits; 3 lectures, 1 lab. and one week field laboratory prior to fall term.) The major problems to which wildlife and fisheries ecologists address themselves, how they go about solving them, and with what measure of success. The problems will include species distribution, abundance and factors which affect rises or declines in population, sizes including harvesting practices, and management of the habitat. PROFESSOR BIDER

375-412A. FIELD TECHNIQUES IN AREA DEVELOPMENT. (3 Credits; 2 labs.) (Offered in alternate years. Given in 1973-74.) This course will be conducted in the field. It will provide an opportunity for the student to apply the principles of human, social and economic inventory, analysis and planning techniques. PROFESSOR CHEVRIER

375-450A, B. SPECIAL TOPICS IN RENEWABLE RESOURCES DEVELOPMENT. (2 Credits.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area. STAFF

375-491A. SEMINAR. (2 Credits; 1 lecture and 1 lab.) Each student is assigned a renewable resource problem entailing an individual investigation, the preparation of a report in publication form, and an oral presentation as a scientific paper. MAJOR PROFESSORS AND STAFF

375-496D. PROJECT I. (3 Credits; 1 lab.) Development of research techniques through selection of hypotheses, review of literature, original research and formulation of conclusions in an area of renewable resource development. COORDINATOR, MAJOR PROFESSOR AND STAFF

375-497D. PROJECT II. (5 Credits; 2 labs.) Development of research techniques through selection of hypotheses, review of literature, research and formulation of conclusions in an area of renewable resource development. COORDINATOR, MAJOR PROFESSOR AND STAFF

5.30 SOCIOLOGY

370-230A. INTRODUCTORY SOCIOLOGY: SOCIETY TODAY. (3 Credits; 3 lectures.) The study of man in his relationship to human groups and institutions. The patterns and arrangements of human societies, their development and change. Major theoretical views of sociology and basic sociological concepts related to contemporary conditions and problems. PROFESSOR CHEVRIER

370-240B. THE SOCIAL DEVELOPMENT OF THE INDIVIDUAL. (3 Credits; 3 lectures; *Prerequisite:* Sociology 230A.) The social nature of man. Language and communication. Socialization. Self, personality and social character in the sociological perspective. PROFESSOR CHEVRIER

370-341A. THE URBAN COMMUNITY. (3 Credits; 3 lectures; *Prerequisite:* Sociology 230A.) (Given in 1974-75.) Population phenomena and their implications for the organization of society. Human ecology. The structure of urban communities in industrial and developing countries. Urban planning. City government. Social institutions in the urban setting. PROFESSOR CHEVRIER

370-342B. SOCIAL PROCESSES AND SOCIAL INSTITUTIONS. (3 Credits; 3 lectures; *Prerequisite:* Sociology 230A.) (Given in 1974-75.) Sociological theories of society. Systems of stratification, classes and mobility. Social control and the maintenance of order. Bureaucracy and modern organization. Power, authority and the political order. The realm of ideas: education, science, religion and ideologies. Social change and the future of society. PROFESSOR CHEVRIER

370-350A. RESEARCH METHODS FOR SOCIAL SURVEYS. (3 Credits; 2 lectures and one 2 hr. lab.; *Prerequisite:* Sociology 230A.) (Given in 1973-74.) Science and the scientific method. Formulation of the research project. Data collection. Sampling. Measurement and scaling. Analysis of data and interpretation. Presentation of research findings. PROFESSOR CHEVRIER

370-360B. RURAL SOCIOLOGY. (3 Credits; 3 lectures; *Prerequisite:* Sociology 230A.) (Given in 1973-74.) Settlement patterns and their social significance. The major social systems of the rural community. Farms and Farmers. Government policies. Rural life in traditional societies and in urbanized societies. PROFESSOR CHEVRIER

5.31 SOIL SCIENCE

372-210A. PRINCIPLES OF SOIL SCIENCE. (3 Credits; 3 lectures and one lab.) Origin, development and classification of soils, chemical and physical properties related to crop production, soil conservation and land use. PROFESSOR MACKENZIE

372-230B. THE PHYSICAL ENVIRONMENT. (3 Credits; 3 lectures and one lab.) Description and classification of soils, geomorphology, and landscape, organic matter, water and nutrients. The hydrologic cycle, surface drainage, ground water, water quality. Energy balance at the ground surface, evaporation, temperature regimes, freezing temperatures, micro-climate, meteorological records. MR. NEILSON AND OTHERS

372-250A. GEOLOGY AND GEOMORPHOLOGY. (3 Credits; 3 lectures and one lab.) (Offered in alternate years; given in 1973-74.) Geology, petrology and stratigraphy of the common igneous, sedimentary and metamorphic rocks. Principles of geomorphology related to landscape features and their interpretation. Weathering, mass wasting, erosion and deposition. PROFESSOR.....

372-310B. SOIL CHEMISTRY AND FERTILITY. (3 Credits; 3 lectures and one lab.; *Prerequisite:* Soil Science 210A.) Chemical composition of soils, origin and chemistry of plant nutrients, influence of soil properties on nutrient absorption and plant growth, instrumental analysis, other analytical techniques. PROFESSOR MACKENZIE

372-320A. SOIL GEOGRAPHY. (3 Credits; 3 lectures and one lab.) A study of soil as a main constraint in geography. Utilization of soils in relation to agriculture, forestry, recreation, wild life, urbanization, industrialization and engineering. Interpretation of soil maps in relation to the society, the economy and the physical environment, with suggested methods of planning land development. PROFESSOR MILLETTE

372-330B. PHYSICAL PROPERTIES OF SOILS. (3 Credits; 2 lectures and one lab.) Soil structure, fluxes of water, heat, gases and solids in soils; physical properties and plant growth; applications to soil dynamics. PROFESSOR WARKENTIN

372-420A. SOIL SURVEY. (3 Credits; 1 lecture and 3 labs.) Two weeks of soil mapping before session begins. Technique of taking soil descriptions and establishing mapping units. Preparation of soil, land use and other interpretation maps. Interpretation of aerial photographs. PROFESSOR MILLETTE

372-491A. PROJECT I. (3 Credits; 2 labs.) Studies of selected problems involving laboratory and library research. STAFF

372-493B. PROJECT II. (3 Credits; 2 labs.) Studies of selected problems involving laboratory and library research. STAFF

372-495D. SEMINAR. (1 Credit; 1 lecture.) Discussions of selected topics in Soil Science. STAFF

5.32 TEXTILES AND CLOTHING

386-220A. CONTEMPORARY CLOTHING CONSTRUCTION. (3 Credits; 2 labs.) Principles and techniques of garment construction. The application of these principles in the construction of garments using the commercial pattern; and in the making of a sample laboratory manual. MRS. MARTIN

386-220B. CONTEMPORARY CLOTHING CONSTRUCTION. (See 386-220A.)

386-221B. APPAREL TAILORING. (3 Credits; 2 labs.; *Prerequisite:* Textiles and Clothing 220A or B.) Principles and techniques of custom tailoring as achieved through the structural potential of fabrics. PROFESSOR.....

386-321A. APPAREL DESIGN. (3 Credits; 2 labs.) Creative experiments in garment design by pattern drafting and draping. PROFESSOR.....

386-322B. PSYCHOLOGICAL AND SOCIAL BASES OF CLOTHING. (3 Credits; 3 lectures). A study of the function and use of clothing at different stages in the life cycle of the individual. The use of colour and styling as an expression of personality. Historical and contemporary perspectives of dress as a reflection of social rank and life styles. PROFESSOR.....

386-332A. TEXTILES — NATURAL AND MAN-MADE FIBRES. (3 Credits; 3 lectures and 1 lab.) The physical properties of natural and man-made fibres. The performance of yarns in use for apparel and textiles. PROFESSOR.....

386-433B. TEXTILES CHEMISTRY. (3 Credits; 3 lectures and one lab.) A study of cellulose protein, synthetic and mineral fibres; dyestuffs and dyeing; finishes and finishing. Modern problems and developments in textiles. PROFESSORS ANASTASSIADIS AND HENNEBERRY

5.33 WOODLOT MANAGEMENT

374-200B. FOREST RESOURCES. (3 Credits; 3 lectures and project.) Classification of Canadian forests; forest policy; industrial utilization and products; forest economics; management,

harvesting methods and ecological implications, costs and other factors affecting levels of management; problems in reforestation and afforestation; multiple-use concepts; recreational aspects; forest influences.
PROFESSOR A. R. C. JONES

374-330A. PRIVATE FORESTRY. (3 Credits; 3 lectures and 1 lab.) Trees and forests of eastern Canada; forest ecology; products; multiple use potentials; silviculture, management, and marketing; diverse objectives of forest owners, management alternatives; relation to agriculture; analysis of management problems; present and future socio-economic significance of this segment of land resource.
PROFESSOR MACARTHUR

374-440B. SILVICULTURE. (3 Credits; 2 lectures; 1 conference; Desirable *Prerequisites:* Botany 451A, Woodlot Management 330A; or consent of instructor.) A generalized treatment of applied forest ecology and current silvicultural practices with emphasis on Eastern Canadian conditions. The principles of regeneration, nursery practice, planting, tending and harvesting of natural and artificial stands, accompanied by field observations and study of selected forestry and related operations.
STAFF AND GUEST LECTURERS

374-490D. PROJECT — WOODLAND RESOURCES. (3 Credits; 1 lecture; 1 conference.) Study of a selected problem in one of the areas related to forest land use, urban forestry, arboriculture and recreational use of forest land involving field study and literature review. Project will include preparation of a report and an oral presentation.
STAFF

5.34 ZOOLOGY

349-203B. INVERTEBRATE ZOOLOGY. (3 Credits; 2 lectures, one lab. and conference.) The biology, structure, physiology and evolution of the invertebrates, exclusive of insects.
PROFESSOR MORRISON AND STAFF

349-205B. LABORATORY TECHNIQUES IN ZOOLOGY. (3 Credits; 1 lecture, one lab. and project.) The preparation of histological slides and the technique of making scientific illustrations.
PROFESSOR MCFARLANE

349-307A. NATURAL HISTORY OF THE VERTEBRATES. (3 Credits; 3 lectures and one lab.) (Offered in alternate years. Given in 1973-74.) A general review of the higher taxonomic groups of vertebrates along with the prochordates. Major emphasis is on the diagnostic characters which serve to separate the groups, and also their evolution and distribution.
PROFESSOR BIDER

349-308B. COMPARATIVE MORPHOLOGY OF THE VERTEBRATES. (3 Credits; 2 lectures, one lab. and project.) (Offered in alternate years. Given in 1973-74). An overview of the morphological adaptations, and their evolution, of the vertebrates. Major differences between vertebrates and invertebrates; the early embryology, supporting systems including the axial skeletal system and paired structures; muscular, digestive, and nervous systems; sensory systems of vision, acoustics, and taste; the endocrines; and the tegumentary system.
MRS. (DR.) ALI-KHAN

349-310A. COMPARATIVE ETHOLOGY. (3 Credits; 2 lectures, one lab. and project.) (Offered in alternate years. Not given before 1973-74.)

349-312A. PRINCIPLES OF SYSTEMATIC ZOOLOGY I. (3 Credits; 3 lectures, and assignments.) (Offered in alternate years. Given in 1973-74.) Introduction to animal taxonomy; 'the New Systematics'; the species concept; variation; speciation; reproductive isolation; evolution; phylogeny; phenetics: zoological nomenclature; methodology, etc.
PROFESSORS KEVAN AND VICKERY

349-313B. PRINCIPLES OF SYSTEMATIC ZOOLOGY II. (3 Credits; 3 lectures and project; *Prerequisite:* Zoology 312A.) (Offered in alternate years. Given in 1973-74.) Present and past factors affecting the areal, regional and world distribution of animal groups and species, with particular reference to the post-Mesozoic fauna; related aspects of evolutionary and phylogenetic theory, e.g., adaptation, mimicry, parallel and convergent evolution, etc., 'Continental Drift', climatic and topographical variation, dispersal, etc.
PROFESSORS KEVAN AND VICKERY

349-315A. BIOLOGY OF INLAND WATERS I. (3 Credits; 2 lectures and one lab.; *Prerequisite:* Any basic Botany or Zoology.) General nature and history of limnology; divisions of inland waters; properties of fresh water; habitats; zones; nutrient cycles; biota; adaptations; seasonal variation; distributions; pollution; succession and evolution of fresh water environment. Some field excursions will be arranged.
MRS. (DR.) ALI KHAN

349-316B. BIOLOGY OF INLAND WATERS II. (3 Credits; 2 lectures and one lab.; *Prerequisite:* Zoology 315A.) (Offered in alternate years. Given in 1973-74.) A continuation of Biology of Inland Waters I, covering in greater detail those areas related more particularly to animal life,

with particular reference to invertebrates (especially insects); faunal groups according to systematic position and habitat; identification; distribution within water bodies; locomotion, food relations; effects of environment; indicators of pollution. MRS. (DR.) ALI KHAN

349-418A. TERRESTRIAL ANIMAL ECOLOGY I. (3 Credits; 2 lectures, one lab. and field course; *Prerequisite:* Biology 204B.) A more advanced course in animal ecology considering concepts and methods in physiological and population ecology by using case studies from land environments. PROFESSOR STEWART

349-419B. TERRESTRIAL ANIMAL ECOLOGY II. (3 Credits; 2 lectures and 2 conferences; *Prerequisite:* Zoology 418A.) A more advanced course considering concepts and methods in synecology using case studies, mainly from land environments. PROFESSOR STEWART

349-422A. PARASITOLOGY I. (3 Credits; 2 lectures and one lab.; *Prerequisite:* Biology 200A.) (Offered in alternate years. Given in 1974-75.) The systematics, morphology, biology and ecology of the parasitic protozoa and flatworms with emphasis on economically and medically important species. PROFESSORS DAVEY, KEVAN AND MEEROVITCH

349-423B. PARASITOLOGY II. (3 Credits; 2 lectures and one lab.; *Prerequisite:* Zoology 422A.) (Offered in alternate years. Given in 1974-75.) The systematics, morphology, biology and ecology of the parasitic roundworms and arthropods with emphasis on economically and medically important species. PROFESSORS DAVEY, KEVAN AND MEEROVITCH

349-425A. ANIMAL MECHANICS. (3 Credits; 2 lectures and one lab. and project.) (Offered in alternate years. Given in 1973-74.) The need for animal movement, and a study of the machinery of animal movements; the principles of statics and dynamics appropriate to an understanding of body movements; the physics of swimming, walking, running, jumping, creeping and burrowing. An introduction to the dynamics of control in body movements. PROFESSORS NORRIS AND STEWART

349-490D. PROJECT. (3 Credits; 1 lab.) A problem involving literature review and private investigation will be allotted to each student taking the course. STAFF

349-495D. SEMINAR AND LITERATURE REVIEW. (2 Credits; 2 lectures.) Presentation of papers on, and discussion of, topics from selected fields of Zoology (including Entomology) and of research reports; reviews of recent literature. PROFESSOR MORRISON AND STAFF

6 GRADUATE PROGRAMS

Graduate work, under the Faculty of Graduate Studies and Research, McGill University, Montreal, may be undertaken at Macdonald College, in Agricultural Enginneering, Agronomy, Animal Science (Animal Breeding, Animal Physiology or Nutrition), Chemistry, Economics, Entomology, Genetics, Horticulture, Microbiology, Parasitology, Plant Pathology, Soil Science and Wildlife Biology. The advanced courses of study offered lead to the degrees of Master of Science and Doctor of Philosophy.

A number of scholarships and student assistantships are available.

The Faculty of Graduate Studies and Research issues an *Announcement* giving full information regarding graduate courses, and scholarships, theses, registration, etc., in connection therewith, which will be sent on application to the Dean of the Faculty of Graduate Studies and Research, McGill University, Montreal or to the Registrar, Macdonald College. Que.

7 DIPLOMA IN AGRICULTURE

Director — Professor P. Y. HAMILTON

In this two-year program, the practical application of the principles of agricultural science is emphasized. The objectives of the program are:

— To provide the student with the best possible instruction in the agricultural practices of eastern Canada.

— To develop in the student an understanding of the problems of agriculture and provide the knowledge required for an intelligent approach to their solution.

— To prepare the student for leadership in the community.

The graduates of the Diploma program find careers in agricultural production and its industries closely related to agriculture.

The work of the first year is taken by all students in common. In the second year certain courses are taken by all students, but each student must choose, in addition, a minimum number of courses from a list of elective courses. The student must indicate his choice on the registration form at the beginning of the second year, and is strongly advised to make his choice before the end of his first year. In the event that too few students select an elective course in any year, that course may not be given in that year.

7.1 ENTRANCE REQUIREMENTS

1. Students must have passed their seventeenth birthday before entering the program.
2. Students should have a good practical knowledge of farming, either coming from a farm or having worked for at least one full season on an approved Eastern Canadian farm.
3. The education requirement is the Grade XI Quebec High School Leaving Certificate or its equivalent with passes in a minimum of eight papers which must include at least one mathematics and one science subject.
4. Students of mature years who do not meet the academic requirements and who intend to make agriculture a career may apply for admission. Their application will be considered in an interview with the Diploma Course Committee.

Information on other matters of concern to Diploma students is found under the following headings (see index): Registration, Residence, Conduct and Discipline, Fees, Health Service.

7.2 SYLLABUS

Diploma Course
FIRST YEAR

TERM 1

COURSE NUMBER	SUBJECT	CREDITS
336-D12A	Agricultural Engineering-Machinery	3
340-D13A	Hay and Pasture Crops	2
342-D12A	Animal Anatomy and Physiology	2
344-D11A	Agricultural Botany	2
344-D13A	Zoology	2
332-D11A	Elementary Chemistry	2
348-D15D	English	1
360-D15A	Algebra, Geometry and Trigonometry	2
372-D11A	Soils	2

TERM 2

336-D13B	Ag.Eng. - Shopwork and Metallurgy	2
342-D13B	Applied Animal Nutrition or Feeds and Feeding	2
342-D11B	Principles of Livestock Improvement	2
334-D17B	Economics of Canadian Agriculture	2
348-D15D	English	1
358-D15B	General Horticulture	2
362-D11B	Microbiology	1
338-D16B	Physics	1
340-D19B	Grains and Miscellaneous Crops	2
	Total	33

SECOND YEAR

TERM 1

Required Courses

COURSE NUMBER	SUBJECT	CREDITS
336-D22A	Land Measurement and Water Control	3
334-D28D	Farm Management	2
352-D21A	Extension Methods	2
330-D26D	Farm Project	1
340-D24B	Weeds and Weed Control	2

Electives (Minimum of 6 credits)

374-D21A	Farm Forestry	2
342-D23A	Dairy Cattle Production	2
342-D24A	Beef Cattle and Sheep Production	2
358-D22A	Vegetable Cash Crops	2
358-D23A	Fruit Cash Crops	2
338-D21A	Agricultural Weather and Climate	2
340-D22A	Seed Production, Processing and Analysis	2

TERM 2

Required Courses

344-D21B	Pest Control	2
334-D28D	Farm Management (Cont'd)	2
340-D27B	Crop Management	2
330-D26D	Farm Project (Cont'd)	1

Electives (Minimum of 6 credits)

336-D23B	Structures, Environments and Materials Handling	3
342-D22B	Animal Products	3
342-D25B	Animal Disease Control	2
342-D26B	Swine Production	2
342-D27B	Poultry Production	2
358-D21B	Commercial Handling of Horticultural Products	2
358-D24B	Commercial Ornamental Horticulture	2
350-D22B	Bees and Beekeeping	2
	Total	29

7.3 DESCRIPTION OF DIPLOMA COURSES

Courses designated "A" are given in first term only.

Courses designated "B" are given in the second term only.

Courses designated "D" continue throughout both terms.

7.3.1 AGRICULTURAL ENGINEERING

336-D12A. AGRICULTURAL POWER AND MACHINERY. (3 Credits; 3 lectures and 2 labs.) Principles of tillage, planting, fertilizer distribution, crop protection, harvesting and transport. Agricultural prime movers and power transmission; mechanical and hydraulic systems. Traction, trafficability and mobility. Operator comfort, efficiency and safety. Machinery maintenance. Cost analysis and machinery management. Use of Nebraska Test Reports.

PROFESSOR NORRIS

336-D13B. AGRICULTURAL SHOP PRACTICE. (2 Credits; 3 lectures and 1 lab.) Principles and practice in material cutting, shaping, forming, joining, fabrication. Practical exercises in welding, soldering, riveting, gluing; use of nails, bolts, screws. Operation of hand power tools. Metallurgy and properties of materials. Principles and applications of protective coatings.
PROFESSOR NORRIS

336-D22A. LAND MEASUREMENT AND WATER CONTROL. (3 Credits; 3 lectures and 2 labs.) Surveying measurements and computation; land drainage; water supply; waste management.
PROFESSORS BROUGHTON AND OGILVIE

336-D23B. STRUCTURES, ENVIRONMENT AND MATERIALS HANDLING. (3 Credits; 3 lectures and 2 labs.) Agricultural structures for animal housing and crop storage; environmental control; agricultural materials handling; agricultural application of electric power and control.
PROFESSORS MARQUIS AND CASSIDY

7.3.2 AGRONOMY

340-D13A. HAY AND PASTURE CROPS. (2 Credits; 3 lectures and 1 lab. period.) Hay and pasture crops from the standpoint of their importance, variety, culture, management, preservation and seed production. PROFESSORS RILEY AND LAWSON

340-D19B. GRAIN AND MISCELLANEOUS CROPS. (2 Credits; 3 lectures and 1 lab. period.) These crops will be studied from the standpoint of their importance, variety, culture and management. PROFESSORS RILEY AND KLINCK

340-D24B. WEEDS AND WEED CONTROL. (2 Credits; 2 lectures and 1 lab. period.) Weeds will be studied from the standpoint of their relative importance as crop contaminants, their control by chemical and cultural means. Each student is required to make a collection of 20 farm weeds, suitably mounted. This collection will be used in the laboratory. PROFESSOR RILEY

340-D25A. SEED PRODUCTION, PROCESSING AND ANALYSIS. (2 Credits; 1 lecture, 2 labs.) A study of production, processing, storage and marketing of seed. Attention is given to seed characteristics and their utilization in seed separation and analysis. Seed certification systems, seed grading and seed laws are examined. Considerable emphasis is placed on laboratory assignments dealing with seed processing and quality evaluation. PROFESSOR KLINCK

340-D27B. CROP MANAGEMENT. (2 Credits; 2 lectures and 1 lab. period.) Factors determining the crops to grow, cropping schemes for typical situation in Eastern Canada.
PROFESSOR RILEY

7.3.3 ANIMAL SCIENCE

342-D11B. PRINCIPLES OF LIVESTOCK IMPROVEMENT. (2 Credits; 3 lectures and 1 lab. period.) The fundamental principles underlying the improvement of animals through breeding and the application of these principles to the improvement of livestock and poultry.
PROFESSORS MOXLEY AND BUCKLAND

342-D12A., ANIMAL ANATOMY AND PHYSIOLOGY. (2 Credits; 2 lectures and 1 lab. period.) A study of the structure and function of the various organ systems of farm animals with special reference to those features associated with animal production. PROFESSOR R. D. BAKER

342-D13B. APPLIED ANIMAL NUTRITION. (2 Credits; 3 lectures and 1 lab. period.) Nutrients in feeds and their function in the body. A study of common feeds and their use in animal rations. Ration formulation and feeding programs. PROFESSOR G. M. JONES

342-D22B. ANIMAL PRODUCTS — THEIR NATURE AND TECHNOLOGY. (2 Credits; 2 lectures and 2 lab. periods.) The composition of milk, meats, eggs, wool. Processing of milk and meat products. Market grades and factors determining commercial quality of animal products.
PROFESSOR. . . . . .

342-D23A. DAIRY CATTLE PRODUCTION. (2 Credits; 2 lectures and 1 lab period.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of milk and meat by dairy cattle. Trips to dairy farms and related enterprises will comprise part of the laboratory work. PROFESSOR G. M. JONES

342-D24B. BEEF CATTLE AND SHEEP PRODUCTION. (2 Credits; 2 lectures and 1 lab. period.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of beef cattle and sheep. Trips to beef and sheep farms and related enterprises will comprise part of the laboratory work.
PROFESSOR P. Y. HAMILTON

342-D25B. ANIMAL DISEASE CONTROL. (2 Credits; 2 lectures and 1 lab. period.) The causes and consequences of disease. General principles of disease prevention, treatment and sanitation.
DR. L. J. F. MARTIN

342-D26B. SWINE PRODUCTION. (2 Credits: 2 lectures and 1 lab. period.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of swine. Trips to swine farms and related enterprises will comprise part of the laboratory work. PROFESSOR HARTSOCK

342-D27B. POULTRY PRODUCTION. (2 Credits; 2 lectures and 1 lab. period.) The application of biological principles of genetics, physiology, nutrition and pathology as well as principles of economics and engineering and the integration of these principles, through management, for the maximum production efficiency of poultry meat and eggs. Trips to poultry farms and related enterprises will comprise part of the laboratory work. PROFESSOR BUCKLAND

7.3.4. BIOLOGY

344-D11A. AGRICULTURAL BOTANY. (2 Credits; 2 lectures and 1 lab. period.) The course consists of a study of the fundamentals of growth and reproduction processes in plants. The botany of economic plants will be studied as much as possible and consideration given to weeds and weed seeds and their control. PROFESSOR PELLETIER

344-D13A. ZOOLOGY. (2 Credits; 2 lectures and 1 lab. period.) A review of general zoology and its taxonomic basis, followed by elementary treatment of insects, including structure, classification, principles of ecology, principles of pest control, and use of literature on insects. PROFESSOR VICKERY

344-D21B. PEST CONTROL. (2 Credits; 2 lectures and 1 lab. period.) Amplification of the principles of pest control and a summary of pest control chemicals. The student prepares notes on recognition, habits and control of eight plant diseases and eight insect pests of crops or animals of special interest to him. PROFESSORS ESTEY AND VICKERY

7.3.5 CHEMISTRY

332-D11A. ELEMENTARY CHEMISTRY. (2 Credits; 2 lectures and 1 lab. period.) A chemistry course with special application to soils, fertilizers, feeding stuffs, and insecticides and fungicides. PROFESSOR HENNEBERRY

7.3.6 ECONOMICS

334-D17B. ECONOMICS OF CANADIAN AGRICULTURE. (2 Credits; 3 lectures per week.) The economics of the Canadian farm industry. Structure and organization. Commodity sectors. Marketing institutions and practices. Farm credit. PROFESSOR MacFARLANE

334-D28D. FARM MANAGEMENT. (2 credits; 2 lectures and 1 lab. period.) The keeping of farm accounts and production records and their analysis as a means of improving the efficiency of production. Farm credit and partial budgeting as applied to farming. A study of the economic guides to farm management decisions. Farm income tax. PROFESSOR.....

7.3.7 ENGLISH

348-D15D. ENGLISH. (2 Credits; 2 lectures.) Principles and practice of oral and written English. PROFESSOR GODFREY

7.3.8 ENTOMOLOGY

350-D22B. BEES AND BEEKEEPING. (2 Credits; 2 lectures, 1 conference.) Social insects, development of social behaviour and coevolution of flowering plants and social insects. Life and behaviour of honeybees. Insect pollination of plants. Economics of pollination and honey production. Practical beekeeping including all modern beekeeping practices. PROFESSOR VICKERY

7.3.9 EXTENSION METHODS

352-D21A. EXTENSION METHODS. (2 Credits; 1 lecture and 1 lab. period.) A course to develop rural leadership and the ability to communicate ideas. Includes a study of the changing rural community and its redevelopment; the function of rural organizations; extension methods and communication skills. MR. VAN LIEROP

7.3.10 HORTICULTURE

358-D15B. GENERAL HORTICULTURE. (2 Credits; 3 lectures and 1 lab. period.) A general course dealing with the principles of farm horticulture including the farm garden, the improvement of the home surroundings, potato production, the farm orchard and small fruit plantations, and home storage. PROFESSOR TAPER AND STAFF

358-D21B. THE COMMERCIAL PACKAGING, HANDLING, AND STORAGE OF HORTICULTURAL PRODUCTS. (2 Credits; 2 lectures and 1 lab. period.) Storages and storage practices. Canning, quick freezing and other means of food preservation will be considered. PROFESSOR DAVID

358-D22A. VEGETABLE CASH CROPS. (2 Credits; 2 lectures and 1 lab. period.) A study of commercial vegetable production with reference to canning crops such as peas, beans, sweet corn, and tomatoes; and storage crops such as potatoes, carrots, onions and cabbage.
PROFESSOR BIBLE

358-D23A. FRUIT CASH CROPS. (2 Credits; 2 lectures and 1 lab. period.) The production of fruit cash crops for market and processing.
PROFESSOR TAPER

358-D24B. COMMERCIAL ORNAMENTAL HORTICULTURE. (2 Credits; 2 lectures and 1 lab. period.) A consideration of commercial nurseries and nursery practices, turf farming, and the operation of garden centres.
MR. WIGDOR

7.3.11 MATHEMATICS

360-D15A. ALGEBRA, GEOMETRY AND TRIGONOMETRY. (2 Credits; 3 lectures.) An introductory course including a study of exponents, logarithms, the slide rule, characteristics of lines and planes, equations of line and circle, charts and graphs, trigonometrical functions, number bases, interest and annuities.
PROFESSOR DOUGLAS

7.3.12 MICROBIOLOGY

362-D11B. AGRICULTURAL MICROBIOLOGY. (1 Credit; 1 lab. period.) A study of bacteria in relation to milk, water, sewage, soil fertility, fermentation, food preservation and food poisoning.
PROFESSOR ROBERTSON

7.3.13 PHYSICS

338-D16B. PHYSICS. (1 Credit.) A course dealing with the fundamental principles of Physics particularly in regard to energy
PROFESSOR.....

338-D21A. AGRICULTURAL WEATHER AND CLIMATE. (2 Credits: 1 lecture; 2 labs.) An introduction to weather and climate, with emphasis on such observations as can be made easily and inexpensively on a farm, and on the Interpretation of these in terms of the weather map and forecast.
PROFESSOR DOUGLAS

7.3.14 PROJECT

330-D26D. PROJECT. (2 Credits; equivalent of 2 labs.) A project is required of each Second year student. This will consist of a detailed analysis of the operation of a Canadian farm, and projected plans for the enterprise selected by the student to provide for full farm operations covering a period of five or more years. To be completed not later than March 31.
Supervising Committee: *The Diploma Course Committee*
PROFESSOR HAMILTON (CHAIRMAN)

7.13.15 SOIL SCIENCE

372-D11A. SOILS. (2 Credits; 2 lectures and 1 lab. period) Soil properties and characteristics; classification and mapping of soils; recognizing differences among soils on a farm; use of fertilizers, lime and manure; soil testing; tillage and soil management.
PROFESSOR MILLETTE

7.3.16 WOODLOT MANAGEMENT

374-D21A. FARM FORESTRY. (2 Credits; 1 lecture and 2 lab. periods.) Principal trees of Eastern Canada and their silvicultural characteristics; woodlot protection; forest communities. Volume estimates of trees and woodlot products; woodlot timber cruising; calculation of annual cut; cutting methods; forest stand improvement; logging practices; reforestation and Christmas tree crops; sugar bush management; marketing of woodlot products.
PROFESSOR A. R. C. JONES

7.4 ACADEMIC STANDING — DIPLOMA IN AGRICULTURE

CREDIT SYSTEM

All courses carry a credit value. Courses are graded by letter. Ratings of 4, 3, 2, 1, and 0 are attached to the letter grades A, B, C, D, and F respectively. The letter grade F indicates a failure.

YEAR 1

A student, in order to proceed to the second term of Year 1, must achieve pass standing in at least half of the credits for which he was registered in the first term. Supplemental examination privileges will be granted up to a maximum of 12 credits at the end of Year 1. Students who have failed more than 12 credits will be required to withdraw. Students with more than 6 credits outstanding will not be allowed to register for Year 2.

YEAR 2

To be eligible for a Diploma, a student must have passed all the required courses and the electives approved by the Director of the Diploma course. He must have accumulated a minimum of 63 credits. He must achieve a cumulative grade point average of at least 2.0 for all courses taken from the syllabus for Year 2.

The grade points for each course are calculated by multiplying the credit value of the course by the student's earned grade rating. The grade point average (G.P.A.) is computed by dividing the sum of the grade points earned by the total course credits attempted. A failed course will remain in the calculation of the G.P.A. even after the course is repeated and passed, or if a supplemental examination is taken.

SUPPLEMENTAL EXAMINATIONS

A student who has failed a course may either re-register for and repeat the course, or may apply to write one supplemental examination and will receive the grade earned. In the case of an elective course, the student may substitute another elective.

Supplemental privileges or re-registration are available for students who wish to up-grade their standing in a course which a grade of D has been obtained. A student may re-register only once in any course. Supplemental examinations may be written at the August supplemental period or at the next regular final examination (i.e. December for first semester courses and April for second semester courses). By arrangement with the instructor, an examination may be made available at the end of a term in which there is no regular end of term examination in that course.

Candidates for a supplemental examination must make application for the examination at least three weeks prior to the examination date on forms available in the Registrar's office. The fee is $10 per paper.

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***NOTE:** Numbers refer to section, *not* page.

McGill University,

SUMMER SESSION 1973

Strathcona Hall, Room 304
772 Sherbrooke St. West
Montreal, Quebec*
Telephone (514) 392-6740

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*Mailing address is:
McGill University Summer Session Office,
P.O. Box 6070, Montreal 101, Quebec, Canada

Legal Deposit I 73

CALENDAR - 1973 SUMMER SESSION

Thursday, March 1	Deadline for receiving applications from Counsellor Education students.
Monday, April 2	Deadline for receiving applications from students in Graduate Studies in Education.
Monday, April 2	Last day for receiving applications for Pre-Summer Session.
Monday, April 16	Last day for admission with late registration fee for Pre-Summer Session.
Tuesday, May 15	Last day for receiving applications for Summer Session.
Wednesday, May 16	Classes begin in Pre-Summer Session.
Monday, May 21	Victoria Day. No lectures.
Friday, June 1	Last day for admission with late registration fee for Summer Session.
Friday, June 15	Last day for admission to Summer Session of undergraduates enrolled in the previous winter session.
Monday, June 25	St. Jean Baptiste Day. No lectures.
Wednesday, June 27	Classes end in Pre-Summer Session.
Thursday, June 28 and Friday, June 29	Examinations (for courses ending on June 27).
Monday, July 2	Dominion Day.
Tuesday, July 3	Classes begin in Summer Session.
Friday, August 10	Classes end in Summer Session.
Saturday, August 11 and Monday, August 13	Examinations (for courses ending on August 10).

1 STAFF

1.1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A. (U.B.C.), M.A. (U.B.C.), Ph.D., D.Sc. (U.N.B.), LL.D. (Tor.), F.R.S., F.R.S.C. — *Principal and Vice-Chancellor*

EIGIL PEDERSEN, B.A. (S.G.W.U.), M.A., Ed.D. (Harv.) — *Vice-Principal (Academic)*

S. B. FROST, B.D. (Richmond), M.Th. (London), D.Phil. (Marburg), D.D. (Vic., Tor.), D. Litt. (Mem.) — *Vice-Principal (Administration and Professional Faculties)*

ALLAN C. McCOLL, D.F.C., B.Com., C.A. — *Director of Finance*

COLIN M. McDOUGALL, D.S.O., B.A. — *Registrar*

GORDON W. E. McELROY, B.A. (Queen's), M.A. — *Director, Summer Session*

JEANNE G. MARSOLAIS, B.A., M.A. — *Assistant Director, Summer Session*

1.2 TEACHING STAFF ACADEMIC

1.2.1 VISITING

REAL G. BOULIANNE, B.A., M.A., Ph.D.
Professor, History Department, Vanier College — *Education*

LOIS F. BROWN, B.Ed.
Kindergarten Specialist, Lakeshore Regional School Board — *Education*

GERARD CHARBONNEAU, B.A., B.Ed., M.A., D.E.A. — *Education*

SUE LIN CHOW, B.A., M.A.
Department of Modern Languages, Dawson College — *English*

RICHARD A. EARLE, Ph.D., Faculty of Education, Indiana University — *Education*

HELMUT FAMIRA, Ph.D., Department of Modern Languages, Loyola College — *German*

ALEXANDER FISCHER, Ph.D., University of Montreal — *German*

PATRICIA FOIXET-STUDHAM, Diplôme supérieur, Brevet d'enseignement spécialisé — *Education*

SUSAN GARFINKLE, B.A., M.A., Dawson College — *Education*

LEONARD W. GLISMAN, Ed.D.
Specialist, Industrial Education, Salt Lake City Board of Education — *Education*

BRIAN L. HATTER, B.A.
Head, Technical Vocational Department, Lindsay Place High School — *Education*

PETER HEIMRATH, B.Ed., B.A., M.Ed.
Director General, Child Care and Child Development Center, Inc. — *Education*

J. HEMMER, Ph.D., Counselling Center, University of Massachusetts — *Education*

HERBERT ISENBERG, M.Ed.
Special Class Teacher, North Island Regional School Board — *Education*

FREDERICK D. KAGY, Ed.D., Chairman, Graduate Studies, Department of Industrial Technology, Illinois State University — *Education*

SUMMER SESSION

HENRY J. KALUZA, M.A., Chairman, Business and Commerce Department, Althouse College of Education, University of Western Ontario	*Education*
T. KILROY, M.A., F.R.S.L., University College, Dublin, Ireland	*English*
JAMES R. LEES, M.Ed., Department of Industrial Education and Technology, College of Technology, Kent State University	*Education*
DON LITTLE, M. Ed. Co-ordinator, Special Education, St. John, New Brunswick	*Education*
WILBERT McCURDY, Industrial Education Instructor, Protestant School Board of Greater Montreal	*Education*
HENRY MINTO, M.Ed. Executive Director, McKay Centre for Deaf and Crippled Children	*Education*
M. J. MORGAN, Ph.D., Department of Psychology, Cambridge University	*Psychology*
MAURICE PANNETON, Dip. sup. en pédagogie Montreal Catholic School Commission	*Education*
ALBERT J. PAUTLER, Ed.D., Department of Curriculum Development, State University of New York at Buffalo	*Education*
NAN PRICE, Special Class Teacher, Protestant School Board of Greater Montreal	*Education*
EVA RUSSEL, Protestant School Board of Greater Montreal	*Education*
HERFRIED SCHEER, Ph.D., Loyola College	*German*
E. M. SCHREIBER, B.A., Ph.D., Columbia University	*Sociology*
WILLIAM STEPHEN, Head of Guidance, Northern Secondary School, Toronto	*Education*
KENNETH W. TRICKEY, M.A. Lindsay Place High School, Lakeshore Regional School Board	*Education*
CECIL WELCH, M.Ed., Counsellor, Dawson College	*Education*
JUDY WUGALTER, M.Ed. Department of Psychiatry, Jewish General Hospital	*Education*

1.2.2 McGILL STAFF

ARLIE A. ADKINS, B.A., Th.B., M.A., Ed.D., Professor	*Education*
HARRY S. ANDERSON, B.A., M.Litt., Assistant Professor	*English*
ERMINIA ANTOS, B.A., Teaching Assistant	*German*
ARMIN H. ARNOLD, D.E.L., Professor	*German*
MICHAEL BARR, A.B., Ph.D., Associate Professor	*Mathematics*
HARRY BEATTY, B.A., Ph.D., Assistant Professor	*Philosophy*
IRENA BELLERT, M.A., Ph.D., Ph.D.Hab., Lecturer	*Linguistics*
GORDON J. BENNETT, B.A., M.Ed., Associate Professor	*Education*
FIKRET BERKES, B.Sc., Lecturer	*Biology*
LEWIS B. BIRCH, B.Sc., M.A., F.B.Ps.S., Professor	*Education*
ELTON C. BOCKUS, B.A., M.A., Associate Professor	*Education*
G. BOOKER, B.S., M.M., Ph.D., Assistant Professor	*Education*
JON BRADLEY, B.A., M.A., Dip.Ed., Lecturer	*Education*
DIANE BRUNO, B.A., Lecturer	*English*
DONALD A. BURGESS, B.Sc., Dip.Ed., M.A., Associate Professor	*Education*

PETER BURPEE, B.Sc., Dip.Ed., Assistant Professor — *Education*
DAVID BURRAGE, B.A., M.Sc., Assistant Professor — *Computing Centre*
AYAKO BURTON, B.A., Lecturer — *East Asian Languages and Literature*
MAGDELHAYNE BUTEAU, B.A., B.Ed., M.A., Ph.D., Associate Professor — *Education*
IAN S. BUTLER, B.Sc., Ph.D., Associate Professor — *Chemistry*
JAMES CAMPBELL, B.Sc., M.A., Ph.D., Assistant Professor — *Psychology*
GLENN F. CARTWRIGHT, M.A., Ph.D., Assistant Professor — *Education*
TAK-HANG CHAN, B.Sc., M.A., Ph.D., Associate Professor — *Chemistry*
JENNIE CHANG, B.A., M.A., Lecturer — *East Asian Languages and Literature*
NICHOLAS G. COCCALIS, M.A., B.Ed., M.Ed., Assistant Professor — *Education*
C. ABBOTT CONWAY, B.A., M.A., Associate Professor — *English*
MICHAEL CORBALLIS, B.Sc., M.Sc., Ph.D., Associate Professor — *Psychology*
DOROTHY ANN CREAGHAN, B.A., B.Ed., M.A., Associate Professor — *Education*
JOHN DEALY, B.S.Ch.E., M.S.E., Ph.D., Associate Professor — *Chemical Engineering*
MARY ELIZABETH DOLAN, B.A., M.L.S., Assistant Professor — *Education*
DON DONDERI, B.A., B.S., Ph.D., Associate Professor — *Psychology*
MAX DORSINVILLE, B.A., M.A., Assistant Professor — *English*
FLORENT DUMONT, A.B., M.S., Ed.D., Assistant Professor — *Education*
REGINALD EDWARDS, M.Ed., Professor — *Education*
WINSTON EMERY, B.Ed., M.A., Assistant Professor — *Education*
ARWEL EVANS, B.Sc., M.Sc., Ph.D., Associate Professor — *Mathematics*
PATRICK G. FARRELL, B.Sc., Ph.D., Associate Professor — *Chemistry*
WOLFGANG FLOCH, B.A., M.Ed., Ed.D., Associate Professor — *Education*
BARBARA FOX, B.Sc., Lecturer — *Computing Centre*
PEARL FRANCOEUR, B.Sc., M.Sc., Assistant Professor — *Education*
THOMAS A. FRANCOEUR, B.A., M.A., Doct. in Ed., Dip. Past. Theol., Associate Professor — *Education*
DEAN C. FRYE, B.A., M.A., Ph.D., Associate Professor — *English*
WILLIAM GALLEY, B.Sc., Ph.D., Assistant Professor — *Chemistry*
LAWRENCE GORDON, B.Sc., M.B.A., Assistant Professor — *Management*
KOHUR GOWRISANKARAN, B.A., M.A., Ph.D., Associate Professor — *Mathematics*
FRANK P. GREENE, B.A., M.A., Ph.D., Associate Professor — *Education*
FIONA GURR, B.Sc., Lecturer — *Physics*
DAVID N. HARPP, A.B., M.A., Ph.D., Associate Professor — *Chemistry*
JUSTINE G. HARRIS, B.A., M.Ed., Ed.D., Assistant Professor — *Education*
JOHN F. HARROD, B.Sc., Ph.D., Associate Professor — *Chemistry*
PADDY WEBB HEARSEY, C.Ed., M.A., Assistant Professor — *Education*
LADD HEMMER, B.A., M.A., Assistant Professor — *Education*
JAMES J. HOGAN, B.S., Ph.D., Assistant Professor — *Chemistry*
HUGH HOWSON, B.Com., C.A., Assistant Professor — *Management*
A. HUM, B.A., M.Ed., Assistant Professor — *Education*
GEOFFREY ISHERWOOD, B.S., M.Ed., Assistant Professor — *Education*
ERIC JAY, B.D., M.A., M.Th., Ph.D., Professor — *Religious Studies*
ROBERT F. JONES, B.Mus., M.F.A., Assistant Professor — *Music*
ROBERT J. D. JONES, B.A., Bacc. Ped., M.A., Assistant Professor — *Education*

SUMMER SESSION

RABINDRA KANUNGO, M.A., Ph.D., Associate Professor	*Management*
GEORGE KASUPSKI, B.Sc., Lecturer	*Biology*
JOHN C. KIRBY, B.A., S.T.B., S.T.M., Ph.D., Associate Professor	*Religious Studies*
LESLIE KLINEFELTER, B.A., M.Ed., Lecturer	*Education*
EUSTRADIOS KOUNIAS, B.Sc., Ph.D., Associate Professor	*Mathematics*
MARIANNE LAFON, B.A., Lecturer	*English*
P. C. LANDRY, B.Eng., M.A., M.Sc., Associate Professor	*Education*
MARCIA LANE, B.Sc., B.A., Lecturer	*Management*
ROBERT E. LAVERY, B.A., B.Ed., Lic. Ped., Ph.D., Associate Professor	*Education*
HARRY D. LEAD, B.Sc., M.Sc., Ph.D., Associate Professor	*Education*
HUGH M. LEARD, B.A., B.Ed., M.A., Ed.D., Associate Professor	*Education*
CHRISTOPHER LEWIS, B.A., M.M.A., Lecturer	*Music*
YEHUDY LINDEMAN, Candidate S. Deg., Doctoral, Ph.D., Assistant Professor	*English*
JOHN PHILIP LIPKIN, B.A., M.A.T., Ph.D., Associate Professor	*Education*
DONALD P. LITTLE, B.A., M.A., Ph.D., Associate Professor	*Islamic Studies*
JAN LOBELLE, Lic.Sc.Ec., M.A., Associate Professor	*Education*
DAISY A. MACNEILL, B.A., M.A., B.D., Associate Professor	*Education*
MAISIE MACRAE, B.A., Assistant Professor	*Education*
KRISTINE MANN, B.Sc., M.Sc., Lecturer	*Biology*
PAUL MARKS, B.A., M.M., Assistant Professor	*Music*
THEODORE J. MAROUN, B.S., M.S., M.Ed., Ed.D., Associate Professor	*Education*
LOIS E. MCDONALD, B.Mus., M.A., Assistant Professor	*Education*
GERALD HOWARD MCKAY, B.A., M.A., Ed.D., Professor	*Education*
S. MELAMED, B.Sc., M.Sc., Ph.D., Associate Professor	*Mathematics*
TIMOTHY MERRETT, B.Sc., Ph.D., Assistant Professor	*Computing Science*
ANDRE MICHALSKI, B.A., M.A., Ph.D., Associate Professor	*Spanish*
DOMINIC MODAFFERI, B.A., Superior Dip., M.A., Associate Professor	*Education*
JOHN M. O'HARA, B.A., B.Ed., M.A., Associate Professor	*Education*
CLIFFORD PAPKE, B.A., A.O.C.A., Assistant Professor	*Education*
NICHOLAS PAUL, B.A., M.B.A., Lecturer	*Computing Centre*
MICHELANGELO PICONE, Licence Classique, Doct. en Lettres, Assistant Professor	*Italian*
ROBERT N. POLLARD, B.A., M.Ed., Assistant Professor	*Education*
H. OSCAR PURDY, B.A., M.A., Associate Professor	*Education*
PETER QUILY, B.Ed., M.Ed., Assistant Professor	*Education*
M. SAM RABINOVITCH, B.A., M.A., Ph.D., Professor	*Education*
GERALD RATZER, B.Sc., M.Sc., Assistant Professor	*Computing Centre*
HORST RICHTER, D.Phil., Assistant Professor	*German*
JOHN RIPLEY, B.A., M.A., Ph.D., Associate Professor	*English*
ISOBELLE RUSSELL, B.Ed., M.Ed., Assistant Professor	*Education*
WILLIAM J. RYAN, B.A., B.Ed., M.A., M.Ed., Associate Professor	*Education*
PETER SANDIFORD, B.A., M.A., Ph.D., Professor	*Management*
WILLIAM E. SEARLES, B.Sc., M.Sc., Associate Professor	*Education*
DAVID SIMKIN, B.Sc., Ph.D., Assistant Professor	*Chemistry*
DAVID C. SMITH, B.Ed., M.A., Ph.D., Associate Professor	*Education*

SHELLY SOBEL, B.A., Lecturer	*English*
JANICE STEIN, B.A., M.A., Ph.D., Assistant Professor	*Political Science*
RICHARD L. STUDHAM, N.D.D., C.S.G.A., C.S.A., Assistant Professor	*Education*
GEORGE STYAN, B.Sc., M.A., Ph.D., Assistant Professor	*Mathematics*
HOWARD A. STUTT, B.A., B.Ed., M.Ed., Associate Professor	*Education*
MASAKO TAKAHATAKE, B.Ed., Lecturer	*East Asian Languages and Literature*
WILLIAM M. TALLEY, B.A., M.A., Ph.D., Associate Professor	*Education*
KWOK KUEN TAM, B.A.Sc., M.A., Ph.D., Associate Professor	*Mathematics*
DONALD TAYLOR, B.A., M.A., Ph.D., Assistant Professor	*Psychology*
KEITH TEDMAN, B.A., Lecturer	*Music*
A. D. TEITLEBAUM, B.Sc., M.Sc., Ph.D., Associate Professor	*Management*
JOHN TRENTMAN, B.A., M.A., Ph.D., Professor	*Philosophy*
CATHERINE WADDELL, B.A., Assistant Professor	*Education*
P. WANG, Lecturer	*East Asian Languages and Literature*
JAMES WATLING, A.T.C., Assistant Professor	*Education*
ELIZABETH L. WATTERS, B.A., M.Ed., Assistant Professor	*Education*
BOYD E. WHITE, B.A., M.F.A., Assistant Professor	*Education*
JOAN WHITE, B.A., M.A., Ch.V.D., Assistant Professor	*Education*
JAMES WHITTON, M.A., Assistant Professor	*Education*
DAVID WILLIAMS, B.A., M.A., Ph.D., Assistant Professor	*English*
ERIC WINTER, B.Sc., B.Ed., M.A., Associate Professor	*Education*
NANCY WOLFSON, M.Sc., Ph.D., Associate Professor	*Biology*
F. JACK YOUNG, B.Ed., M.A., Associate Professor	*Education*

2 GENERAL INFORMATION

The McGill University Summer Session allows students to take regular credit courses. The 1973 Summer Session will consist of two parts. The Pre-Summer Session will be held from May 16 to June 27; the Summer Session from July 3 to August 10. However, some courses may be offered prior to May 16. Please consult the appropriate section of this calendar for the specific dates. The curriculum will include a wide range of undergraduate and graduate courses, particularly in the Faculties of Arts, Education, Engineering, Management, Music, Religious Studies and Science.

French courses and Management courses will be offered through the Summer Session; however, the French Summer School, the Accountancy Summer School and the Centre for Continuing Education will offer additional courses which are not administered by the Summer Session Office. Individuals interested in those specific programs should contact the respective offices concerned.

Generally, a student will have to obtain a total of 90 credits at the university level to qualify for an undergraduate degree; thus, it is possible, by accredited Summer Session study, to complete the requirements in a shorter period of time.

Six-credit courses will be spread over 30 2-hour periods, three-credit courses over 15 2-hour periods or 30 1-hour periods.

Summer Session is designed to meet the needs of various categories of participants including:

1) Students who wish to accelerate their studies.

2) Students from other universities who wish to transfer McGill credits to their own institutions.

3) Students required to repeat courses failed during the winter session.

4) Students who wish to obtain higher qualifications.

5) Students who wish to enrich their education.

6) Teachers who wish to upgrade their certificates or specialize in various areas.

Admission to the Summer Session program does not guarantee that students will be admitted to the regular winter program. Students who wish to apply to the winter session must do so before March 1; whereas full-time university, junior college, or CEGEP students who wish to apply for the Pre-Summer Session and the Summer Session must do so by April 2 (Pre-Summer Session) and May 15 (Summer Session). A late registration fee of $10 will be charged after these dates. Deadlines for late registration are April 16 and June 1 respectively.

Summer Session students who are admitted into the winter session will be granted credit by the various departments concerned for courses taken in the summer, should these courses fit into the structured winter program that they plan to follow.

For complete information concerning course offerings, applications and requirements please communicate with:

Miss Jeanne G. Marsolais
Assistant Director
Summer Session
McGill University
P.O. Box 6070
Montreal 101, Quebec

2.1 FEES AND RESIDENCE CHARGES

Tuition Fees	
Graduate Courses	
Full course	$150.00
Half course	75.00
Undergraduate Courses	
6-credit course	$120.00
4-credit course	80.00
3-credit course	60.00
Lab Fee	
6-credit course	$ 25.00
4-credit course	20.00
3-credit course	15.00
Teachers' Certification Program	$250.00
Technical-Vocational & Commercial	$225.00
Development of Education in Quebec	$ 50.00
Late Registration Fee	$ 10.00
Room and Board (per week, minimum 3 weeks)	$ 44.00
For less than 3 weeks	$7.50 daily

Each application must be accompanied by a cheque or money order (no cash) in the amount of $15.00. This deposit will be deducted from the tuition fee of all Pre-Summer and Summer Session students. Please make cheques payable to "McGill University".

2.1.1 FEES FOR MODULAR COURSES

Students registering for a modular course for which they may receive 3 or 6 credits will initially pay the fee for a 3 credit course, that is $60.00. Students completing the 6 credits must present themselves to the Summer Session Office to pay the remainder of the fee. Failure to do so will result in final marks being withheld pending full payment of fees.

2.1.2 RESIDENCE

Residence accommodation will be available for Summer Session students. The fee for room and board for the 1973 Summer Session is $44 per week for a duration of at least 3 weeks. Students who are accommodated for a period of less than 3 weeks will pay $7.50 daily. Should you seek accommodation, please check the appropriate area on the application form.

All rooms are adequately furnished, and residents are provided with a bedspread, sheets, pillow cases and two towels. Maids do the cleaning, but residents make their own beds and tidy up. Each hall has its own kitchenette with some refrigeration space; residents may also have a radio, phonograph, or other small electrical appliances in their rooms. Recreational facilities are available.

Each hall has its own launderette. An outside cleaning firm also calls regularly at the residences.

While all care will be taken to provide supervision in the residences, the University cannot be responsible for personal possessions left in students' rooms.

2.1.3 ATHLETIC FACILITIES

Summer Session students may purchase a Summer Pool Membership — $7.00 — and membership for the tennis courts — $10.00. The above memberships can be purchased at Office No. 3 of the Sir Arthur Currie Memorial Gymnasium, 475 Pine Avenue West.

2.2 ADMISSION REQUIREMENTS

Admission requirements vary between courses and programs. A limited number of courses are open to students who have completed high school at the Junior Matriculation and/or Senior Matriculation level with adequate standing (with certain exceptions, the overall average on both junior and senior certificates is 70%).

High school students who have received early acceptance from McGill University are eligible for admission.

Summer Session courses will, in general, be open to University, Junior College, and Collegial students who have the necessary prerequisites.

Students applying to McGill University for the first time must have official transcripts and other supporting documents sent to the McGill University Summer Session Office, P.O. Box 6070, McGill University, Montreal 101, Quebec.

All inquiries concerning Graduate Studies should be directed to The Faculty of Graduate Studies and Research, McGill University, Dawson Hall, P.O. Box 6070, Montreal 101, Quebec.

Students applying for Graduate Studies in Education should consult the Faculty of Education section of this booklet.

Please note that all applications for Graduate Studies in Education are to be submitted by April 2 (March 1 for Counsellor Education students.) Other graduate students wishing to register for graduate courses must consult the Departments concerned regarding deadlines for admission.

Admission is selective, and students are reminded that fulfilment of the minimum requirements by no means guarantees acceptance.

REGISTRATION

2.2.1

Registration will be by mail.

IDENTIFICATION CARDS

2.2.2

Identification cards will be mailed to accepted summer school students who have submitted the completed registration form and assessed fees. The I.D. card is necessary for using library facilities.

Replacement of I.D. Card $2.00

2.3 COURSES

COURSE LOAD — SUMMER SESSION

2.3.1

Generally, students (other than those in Summer Education Diploma programs) will not be permitted to register for more than 6 credits per Session, unless they obtain written permission from their Faculties. Please consult sections 2.3.2 anc 2.3.3 below.

COURSE LOAD — ARTS

2.3.2

The Faculty of Arts recommends that McGill students in good standing be permitted to take up to 12 credits in the Summer Session. Six credits, however, will be considered a normal summer load and a student will be permitted to take more than 6 only with the permission of the department in which he is pursuing his major and the departments giving the summer courses. Students from other universities must seek the advice of the McGill department concerned if they wish to take more than 6 credits during the summer.

COURSE LOAD — SCIENCE

2.3.3

Students are permitted to register for 6 credits per Session.

Non-McGill undergraduate students must present a statement from their Director of Academic Study or other appropriate official allowing them to register for more than 6 credits.

In general, students may not register for more than 12 credits during the Summer Session.

COURSE DESIGNATIONS

2.3.4

Course openings are designated according to the following classification:

G — Graduate Students

U — University Students

C — Collegial Students

H — High School Students having received early acceptance from McGill and/or meeting McGill University entrance requirements.

Prerequisites are the courses listed as prerequisites or their equivalents.

The designation "daily" refers to Monday through Friday.

COURSE CHANGES AND WITHDRAWALS

2.3.5

Students may change a course by completing a form in the Summer Session Office. This must be done by the end of the first week of classes.

Students withdrawing from a course prior to the second scheculed class will receive

a 75% refund and those withdrawing by the end of the first week of classes will receive a 50% refund. No refund can be made for students withdrawing after the first week of classes.

Students are advised to withdraw formally from a course by completing the appropriate form in the Summer Session Office. The Summer Session will not be responsible for a bad mark (such as W.F. — Withdrew Failed) being entered on official records if not advised in time by the withdrawing student himself.

2.3.6 CHANGE OF NAME OR ADDRESS

Students must inform the Summer Session Office of any change of name or address either by telephone or in writing.

2.3.7 ATTENDANCE REGULATIONS

Students are expected to attend all lectures, discussion groups, seminars and laboratory periods of the courses in which they are registered.

2.4 PRE-SUMMER SESSION/SUMMER SESSION EXAMINATIONS

Students enrolled in the Summer Session are required to sit the examinations provided at the conclusion of their course, if they desire to have credit earned therein recorded with the university.

An unofficial report of standing will be mailed to each student at his home address.

A candidate may, following publication of the examination results, enter an appeal, through the Summer Session Office, for the reassessment of one or more papers. Each candidate will be assessed a fee of $10 for each paper for which an appeal is entered. Should an appeal result in a higher grade being awarded to an appellant the $10 fee will be refunded.

2.4.1 CLASSIFICATION OF MARKS

Graduate Level

First Cass	80% — 100%
Second Class	65% — 79%
Failure	Below 65%

Undergraduate Level

A	80% — 100%
B	65% — 79%
C	55% — 64%
D	45% — 54%
F (Failure)	Below 45%

Grades A, B, and C will be classed as satisfactory; Grade D is passing but such a grade in a course will not permit entry into a subsequent course for which it is a prerequisite.

Certain courses, e.g. 120-E15C. ENGLISH AS A SECOND LANGUAGE, are authorized to be graded "Pass" or "Fail".

2.4.2 TRANSCRIPTS

Reports of standing will be sent to students only. Those wishing transcripts of their marks sent to their home university or to a School Board MUST complete the necessary forms in the Registrar's Office.

Cost — First two copies each $1.00
Additional copies each $.10

2.5 McGILL UNIVERSITY REGULATIONS

In general, the University regulations listed in the *General Announcement* will apply to Summer Session students unless specified otherwise.

Classes may be cancelled due to insufficient registration.

2.5.1 HEALTH CARE — NON-McGILL STUDENTS

Non-McGill students are not covered by the University's health care provisions and should therefore make their own arrangements for proper coverage. Non-McGill students are advised, however, that they would not be turned away from the Health Centre should an emergency arise.

2.5.2 PARKING REGULATIONS

Summer Session students are allowed to bring automobiles on the McGill University campus provided they comply with University regulations regarding registration, parking areas and speed limits.

Parking permits can be obtained from the Parking Office at 840 McGregor St. On the morning of July 3 only, parking permits may be obtained at the Education Building, 3700 McTavish St., in the main foyer.

McGill University does not accept liability for damage to or theft of a vehicle or its contents while on the University's property.

2.6 LIBRARIES

Summer students are welcome to make use of the University's library facilities. Following is a list of libraries on campus, including addresses and telephone numbers for general information. Since individual privileges and summer hours of service may vary from library to library, it is wise to check with a library before visiting. Stack access and borrowing privileges are assured in the Undergraduate Library and in McLennan Library, which houses the research collection in Humanities and Social Sciences.

Allan Memorial Institute (AMI)
Psychiatry collection
1025 Pine Ave., W.
Tel: 842-1251 ext. 269

Blackader-Lauterman Library
Art and Architecture collection
Redpath Library
Tel: 392-5211

Blacker-Wood Library
Zoology and Ornithology collection
Redpath Library
Tel: 392-5406

Botany & Genetics
Stewart Biology Bldg.
Rm S3/1
Tel: 392-5829

Dentistry
Strathcona Anatomy and Dentistry Bldg.
Main floor
Tel: 392-4926

Divinity
See Religious Studies Library

Education
Education Bldg.
3700 McTavish St.
Tel: 392-8805

Engineering
Macdonald Engr. Bldg.
Tel: 392-5914

Geography
Map collection
Burnside Hall
Rm. 524
Tel: 392-5492

School of Nursing
3506 University St.
Tel: 392-5027

Law
3644 Peel St., 4th fl.
Tel: 392-5067

Library Science
McLennan Lib., Street level
Tel: 392-5931

Macdonald College
Agriculture
Ste. Anne de Bellevue, P.Q.
Tel: 453-6580 ext. 213

Islamic Studies
Leacock Bldg.
Rm 911
Tel: 392-5197

Management
Bronfman Building
1001 Sherbrooke St.
Tel: 392-5804

Marine Sciences Centre
772 Sherbrooke St. W.
Tel: 392-5723

Mathematics
Burnside Hall
Rm 1105
Tel: 392-8273

Medical
McIntyre Medical Sciences Centre
1200 Pine Ave. W.
3rd floor
Tel: 392-4334

Meteorology
Burnside Hall
7th floor
Tel: 392-8237

Music
(Books, scores, records)
Strathcona Music Bldg.
555 Sherbrooke W.
Tel: 392-4530

Osler
History of Medicine collection
McIntyre Medical Bldg.
1200 Pine Ave. W.
3rd floor
Tel: 392-4329

Physical Education Library
Currie Gymnasium
475 Pine Ave. W.
Tel: 392-8893

Physical Sciences
Frank Dawson Adams Bldg.
3450 University St.
Tel: 392-5729

Redpath Library
see Blackader, Blacker and
Undergraduate Libraries

Religious Studies
3520 Unversity St.
Tel: 392-4832

Social Work
3506 University St.
Tel: 392-5046

Undergraduate Library
Redpath Library
Tel: 392-4513

2.6.1 **BOOKSTORE SUMMER SCHEDULE — 1973**

The McGill University Bookstore, located in the Bronfman Building, 1001 Sherbrooke Street, will be open from 9 a.m. to 5 p.m. Monday to Friday from May 16 to May 25, and from July 3 to July 13. From May 28 to June 29 and from July 16 to August 10, the Bookstore will be open 12 noon to 2 p.m. Monday to Friday. Students are advised to wait for confirmation of their courses before purchasing texts.

3 COURSES

3.1 FACULTY OF ARTS

3.1.1 EAST ASIAN LANGUAGES AND LITERATURE

117-E10C. INTRODUCTORY CHINESE. (6 credits.) *Introduction to the use of modern Chinese language (Mandarin), including instruction of basic grammar and patterns with more emphasis on speaking and pronunciation. Direct methods and tape recordings will be used for audio-lingual achievements.*
May 9 — June 27
10 a.m. — 12 noon daily
Lab: Times to be arranged (1 hour daily)
Lab fee
(G, U, C, H.)
MISS CHANG
MRS. WANG
Texts: Tewksbury, *Speak Chinese* and *Character Text for Speak Chinese;* Wang, *Read Chinese*. Book 1

117-151C. INTRODUCTORY JAPANESE. (6 credits.) *Basic training in Japanese conversation, reading and writing. Instruction in the fundamentals of grammar with special emphasis on pronunciation and aural comprehension.*
June 27 — August 10
9 a.m. — 12 noon daily
Lab: Times to be arranged (1 hour daily)
Lab fee
(G, U, C, H.)
MRS. TAKAHATAKE
MRS. BURTON

3.1.2 ECONOMICS

154-200C. PRINCIPLES OF ECONOMICS I. (3 credits, 45 hours over the six-week period.) *An introduction to the study of national income, employment, interest rates and the price level, and of economic policy. (Students taking this course are recommended to follow up with Economics 202C.)*
May 16 — June 27
Times to be arranged
(U, C.)
T. B. A.

154-202C. PRINCIPLES OF ECONOMICS II. (3 credits, 45 hours over the six-week period.) *An introduction to the study of demand, supply and prices of commodities and factors of production. Business, labor unions and government policies towards them.* (Students who want to take this course are strongly recommended to take Economics 200C.)
July 3 — August 10
Times to be arranged
(U, C.)
T. B. A.

3.1.3 ENGLISH

120-E15C. ENGLISH AS A SECOND LANGUAGE. (6 credits.) *Designed to help students whose native tongue is not English and who have difficulty in a) understanding spoken English, b) speaking it themselves, c) reading English text material or d) writing assignments in English. Classroom instruction and language lab.*
July 3 — August 10
9 a.m. — 12:30 p.m. daily
Lab fee.
(Open to anyone whose mother tongue is not English.)
MISS CHOW
MISS SOBEL
MISS BRUNO
STAFF

120-210C. INTRODUCTION TO DRAMA. (6 credits.) *An examination of dramatic literature from the Classical to the period of Realism, and from the period of Realism to modern experimental theatre.*
May 16 — June 27
1:30 p.m. — 3:30 p.m. daily
(U, C, H.) PROFESSOR ANDERSON
Text: Reinert, Otto, *Drama: Classic Through Modern.*

120-228C. CANADIAN LITERATURE. (6 credits.) *The development of prose literature and poetry in Canada from the beginnings to the present time.*
July 3 — August 10
1 p.m. — 3 p.m. daily PROFESSOR CONWAY
(U, C, H.)
Pre-sessional readings: Frye, N., *Bush Garden;* Atwood, M. *Survival;* Klinck, C., *et al., Literary History of Canada: Canadian Literature in English;* Pacey D., *Creative Writing in Canada;* Mandel, E., *Contexts of Canadian Criticism.*

120-202C. COMMUNICATIONS. (6 credits.) *The course attempts to give the student a fundamental understanding of the communication process and its use in and relevance to literature and society. Topics to be studied include non-verbal communication, the writer as communicator, mass media.*
The course will be given in a modular format, i.e. using self-instructing and self-pacing material such as mimeographed readings, videotapes and films. There will be optional films, lectures and discussions. Discussion groups will also be organized at the Drop-In Centre (Redpath Library) where instructors will be available.
July 3 — August 10
1:30 p.m. — 3:30 p.m. daily
(U, C, H.) PROFESSOR LAFON
Texts: Gordon, D. R., *The New Literacy;* Fabun, Don, *Communications: The Transfer of Meaning* and *Telecommunications.*

120-246C. CREATIVE WRITING. (6 credits.)
July 3 — August 10
1 p.m. — 3 p.m. daily
(G, U, C, H.) PROFESSOR KILROY

120-274C. 19TH CENTURY LITERATURE. (6 credits.) *An examination of representative works in the novel, poetry, and drama of the period in the context of its cultural intellectual innovations.*
May 16 — June 27
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) PROFESSOR WILLIAMS
Pre-sessional readings: Booth, W. C., *Rhetoric of Fiction;* Bowra, C. M., *Romantic Imagination;* Brinton, C., *Shaping of Modern Thought;* Lovejoy, A. O., *The Great Chain of Being,* and *Essays in the History of Ideas;* Trawick, L., *Backgrounds of Romanticism.*

120-318C. THIRD WORLD LITERATURE. (6 credits.) *A comparative analysis of significant literary works (poetry, novel, drama) from the Caribbean, Africa and South America published or translated in English. Against the mythical background of "the return of the Prodigal," this course aims to show how writers from these different regions share a common sensibility and address themselves to an inner and outer landscape germane to the history, sociology and psychology of their world.*

July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) PROFESSOR DORSINVILLE

Pre-sessional readings: Africa: Achebe, D., *No Longer at Ease* (novel); Soyinka, W., *Kongi's Harvest* (play). The Caribbean: Césaire, A., *Return to My Native Land* (poem); Naipaul, V. S., *The Mimic Men* (novel); Roumain, J., *Masters of the Dew* (novel). Latin America: Asturias, M., *The President* (novel); Fuentes, C. *A Change of Skin* (novel); Neruda, P. *Selected Poems* (poetry anthology).

120-338C. INTRODUCTION TO THE FILM.

120-349C. THE FILM. (Double course, 12 credits, to be taken simultaneously.) *As a 2-course unit, English 338 and 349 (The McGill Summer Research Institute of Screen Study) explores in depth some of the most vital implications of the prevalence of contemporary technological media. Through a program of guest speakers, seminars, field work, individual projects, and practical applications, the participants will attempt to reach some conclusions on the uses and abuses of media applicable to teachers, to people in the professions, to future communications analysts as well as those interested in a liberal education.*
July 3 — August 10
8 a.m. — 10 a.m. and 1 p.m. — 3 p.m. daily
(U, C, H.) STAFF

120-339C. LITERARY CRITICISM. (6 credits.) *Special attention will be given to modes of literary criticism, including biography, mythography, sociology, and marxism. Works by T. S. Eliot, Northrop Frye, E. Cassirer, and George Lukàcs will be discussed.*
July 3 — August 10
8 a.m. — 10 a.m. daily
(U, C, H.) PROFESSOR LINDEMAN
Text: Wellek and Warren, *Theory of Literature.*

120-350C. DEVELOPMENTAL DRAMA. (6 credits.) *An introduction to Developmental Drama, and its application to literature and communications. Seminars and practical laboratory work in voice movement, sense education improvisation, interpretation of poetry, etc.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
Lab fee
(U, C, H.) PROFESSOR RIPLEY

120-372C. SHAKESPEARE. (6 credits.)
July 3 — August 10
1 p.m. — 3 p.m. daily
(U, C, H.) PROFESSOR FRYE
Text: The Pelican Complete Shakespeare.

3.1.4 FRENCH AS A SECOND LANGUAGE

127-211C. ORAL AND WRITTEN FRENCH. (6 credits.) *Open to any student with basic knowledge of French. Grammar review; vocabulary; discussion and essays on topics chosen and prepared by students. Free use of language laboratory for practice.*
May 16 — June 27
8 a.m. — 10 a.m.
(U, C, H.) T. B. A.

3.1.5 FRENCH LANGUAGE AND LITERATURE

126-222C. FRANCAIS ECRIT (ADVANCED FRENCH COMPOSITION.) (6 credits; *Prerequisite:* Placement test.) *A course designed to improve and consolidate reading and writing skills through systematic composition in French. Review of stylistics and grammar.*
May 16 — June 27
1:30 p.m. to 3:30 p.m. daily
(U.) T. B. A.

3.1.6 GERMAN

129-202C. GERMAN LANGUAGE: BEGINNERS. (6 credits.)
May 16 — June 27 PROFESSOR RICHTER
5:30 — 8:30 p.m. daily
July 3 — August 10 T. B. A.
9 a.m. — 12 noon daily
(G, U. C, H.)
Text: Schulz-Griesbach, *Deutsche Sprachlehre für Auslander, Grundstufe in einem Band.*

129-252C. GERMAN LANGUAGE: INTERMEDIATE. (6 credits; *Prerequisite:* 129-200D, or about 100 hours of German.)
May 16 — June 27 PROFESSOR SCHEER
5:30 — 8:30 p.m. daily
July 3 — August 10 MRS. ANTOS
9 a.m. — 12 noon daily
(G, U, C, H.)

129-302C. GERMAN LANGUAGE: ADVANCED. (6 credits; *Prerequisite:* 129-252D or about 200 hours of German.)
May 16 — June 27 PROFESSOR FISCHER
5:30 — 8:30 p.m. daily
July 3 — August 10 T. B. A.
9 a.m. — 12 noon daily
(G, U, C, H.)

129-643C. GERMAN REALISM: SPECIAL TOPIC. (Graduate half course; *Prerequisite:* B. A. or permission of the Department.)
May 16 — June 27
5:30 — 8:00 p.m. Monday and Wednesday
(G, U with permission) PROFESSOR FAMIRA

129-648C. MODERN GERMAN LITERATURE: SPECIAL TOPIC. (Graduate half course; *Prerequisite:* B.A. or permission of the Department.)
July 3 — August 10
5:30 — 8 p.m. Monday and Wednesday
(G, U with permission) PROFESOR ARNOLD

129-658C. LITERARY CRITICISM: SPECIAL TOPIC. (Graduate half course; *Prerequisite:* B.A. or permission of the Department.)
May 16 — June 27
5:30 — 8 p.m. Tuesday and Thursday
(G, U with permission) PROFESSOR FAMIRA

129-663C. COMPARATIVE STUDIES: SPECIAL TOPIC. (Graduate half course; *Prerequisite:* B.A. or permission of the Department.)
July 3 — August 10
5:30 — 8 p.m. Tuesday and Thursday
(G, U with permission)
PROFESOR ARNOLD

3.1.7 **HISTORY**

101-105C. EUROPEAN CIVILIZATION IN THE MEDIAEVAL AND MODERN PERIODS. (6 credits.) *The mediaeval period is studied in terms of its typical institutions: The Empire, the Papacy, feudalism, the guild, the dynastic state, etc. In the modern period, main emphasis is laid on the emergence of the Great Powers, and the long-term problems, at home and abroad, which conditioned their policies.*
May 16 — June 27
10:30 a.m. — 12:30 p.m. daily
(U, C.)
T. B. A.

101-202C. AN INTRODUCTION TO THE HISTORY OF CANADA. (6 credits.) *This course will be a survey of the evolution of Canada, from the pre-Columbian explorations to the end of the Second World War. Social, economic, political, and intellectual developments will all be considered in a general way. Special emphasis will be placed on the themes of French-English relations, regional particularism, Canadian-American relations, and the influence of technology on Canadian society.*
July 3 — August 10
10:30 a.m. — 12:30 p.m.
(U, C.)
T. B. A.

3.1.8 **ISLAMIC STUDIES**

397-E20C. ELEMENTARY ARABIC. (6 credits; *Prerequisite:* Introductory Arabic 397-E10D or equivalent.) *Studies in Arabic grammar and readings in Arabic texts.*
May 16 — June 27
10:30 a.m. — 12:30 p.m. daily
(G, U, C, H.)
PROFESSOR LITTLE
Texts: Kapilwatsky, *Arabic Language and Grammar*, Vols. II and III; Yellin and Billig, *An Arabic Reader.*

3.1.9 **ITALIAN**

132-230C/360C. SURVEY OF ITALIAN LITERATURE/SEMINAR ON ITALIAN STLYISTICS AND COMPOSITION. (6 credits; *Prerequisites:* CEGEP Elementary Italian for 132-230C; permission of the Department for 132-360C.) *Readings from representative works of Italian literature (132-230C). Intensive practice in stylistics and composition, with special emphasis on literary style (132-360C.)*
July 3 — August 10
First meeting: July 3, 6 p.m.
Subsequent times to be arranged with students.
(U, C, H.)
PROFESSOR PICONE
Texts: Cerutti, T., *A Guide to Composition in Italian*, Cambridge; *Dizionario Garzanti della lingua italiana*, Garzanti; Fochi, F., *L'italiano facile*, Feltrinelli; Jovine, F., *Signora Ava*, Einaudi — collezione scolastica, L 1000; Marchese, R., *Panorama*, La Nuova Italia.

3.1.10 **JEWISH STUDIES**

The McGill University Jewish Studies Program grants credit for course work successfully completed at the following Israeli Universities: Bar-Ilan University of Ramat Gan, Haifa University, Hebrew University of Jerusalem and Tel Aviv University. Students in each

case are required to receive written approval of the courses to be taken from the Chairman of the Department prior to beginning studies. We urge our students to take advantage of the offerings of these universities to augment those of our Jewish Studies Program. For further information contact the Jewish Studies Program.

3.1.11 LINGUISTICS

104-200C. INTRODUCTION TO LANGUAGE. (3 or 6 credits.) *This course will be given in modular form. After the first two organizational meetings the course will not meet at scheduled hours. Rather the students will be provided with appropriate materials for the topics to be covered — handbooks, video-tapes, audio-tapes, films, etc. — and will utilize these materials at their own pace and convenience. A learning centre, which contains a small additional library covering the topics, as well as trained staff, will be available to provide additional assistance to the students. In addition, small discussion groups will be scheduled at various times. The scheduled time slot will be used on occasion for special guests or other material best presented to the group as a whole. The student will have many options from among the 12 topics offered: language sounds, syntax; semantics; language change; bilingualism; non-verbal communication; acquisition, loss and aberration; language in the arts; language and scientific method, cross-cultural linguistics; rationalism and empiricism, formal linguistics. A more detailed description will be available in the linguistics office.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) PROFESSOR BELLERT

3.1.12 PHILOSOPHY

107-210C. INTRODUCTION TO DEDUCTIVE LOGIC. (6 credits.) *Introduction to propositional and quantificational logic.*
May 16 — June 27
4 — 6 p.m. daily
(G, U, C, H.) PROFESSOR BEATTY
Text: Quine, W. V., *Methods of Logic*, 3rd ed.

107-340C. GREEK PHILOSOPHY. (3 credits; *Prerequisite:* one course in Philosophy.) *A study of ancient philosophy from the Milesian school through Plato and Aristotle.*
May 16 — June 27
2 — 3 p.m. daily
(G, U.) PROFESSOR TRENTMAN

3.1.13 POLITICAL SCIENCE

160-211C. INTRODUCTION TO COMPARATIVE GOVERNMENT AND POLITICS. (6 credits.) *The course approaches the basic concepts, institutions and processes of politics in Canada, the United States, Great Britain, France and the Soviet Union through the utilization of fundamental tools of comparative analysis. Tentatively, the course will be taught in a modular format.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C.) T. B. A.

160-244C. INTERNATIONAL POLITICS. (3 credits.) *Introductory analysis of the factors, domestic and international, which determine foreign policy behaviour.*
May 16 — June 5
6 p.m. — 8 p.m. daily
(U, C.) T. B. A.

160-247C. FOREIGN POLICY IN THE THIRD WORLD. (3 credits; Recommended: 160-244A or 160-227A.) *This course will examine domestic and external sources of conflict within the Third World. It is experimental in form: students will work at their own pace through the use of individually designed modules.*
June 6 — June 27
5:30 p.m. — 7:30 p.m. daily
(U, C.)
PROFESSOR J. STEIN

3.1.14 **SOCIOLOGY**

166-E21C. INTRODUCTION TO SOCIOLOGY. (3 credits.) *A general introduction to sociological theory and the analysis of groups in modern society. The course covers comparative cultures, the social development of the individual, ethnic and class groupings, characteristics of urban life, social change, and institutional structures. This course cannot be taken by students who have taken Sociology E22A or E23A.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(U, C, H.)
PROFESSOR SCHREIBER
Limited registration.
Pre-sessional readings: Berger, Peter, *Invitation to Sociology*, Doubleday Anchor paperback; Homans, George C., *The Nature of Social Science*, Harcourt Brace paperback.

3.1.15 **SPANISH LANGUAGE AND LITERATURE**

144-251C. SURVEY OF SPANISH AMERICAN LITERATURE. (6 credits; *Prerequisite:* two years of college-level Spanish.) *A study of the literature of Spanish America through representative works, from the colonial period to the present day.*
May 16 — June 27
10:30 a.m. — 12:30 p.m. daily
(U, C, H, and M.A. (qualifying year))
Limited Registration
PROFESSOR MICHALSKI

3.2 FACULTY OF SCIENCE

3.2.1 **BIOLOGY**

177-E27C. PRINCIPLES OF GENETICS. (3 credits; *Prerequisite:* an introductory course in biology — E10D or equivalent.) *A survey of the gene as the fundamental unit of heredity, with emphasis on human genetics.*
May 16 — June 5
10:30 a.m. — 12:30 p.m. daily
(C, H.)
MISS MANN
MR. KASUPSKI
Text: Winchester, A. M., *A Survey of the Principles of Heredity*, 4th edition.

177-319C. DEVELOPMENTAL BIOLOGY, MARINE. (3 credits; *Prerequisites:* 177-303A or equivalent; permission of instructor.) *McGill University and the Huntsman Marine Laboratory offer a 3-week course on the Development Biology of Marine Organisms at the H. M. L. in St. Andrews, New Brunswick.*

The course provides an opportunity to observe embryonic development of marine organisms in their natural environment, to perform experimental analyses of a number of developmental phenomena, and to talk with visiting scholars who will be lecturing and participating in the laboratory activities.
Costs: — Fees — $75, covering texts, laboratory supplies, use of boats and other equipment.

— Travel costs to and from St. Andrews, N.B. (from Montreal, about $70)
— Accommodation, including room and meals provided by the H. M. L. at $7.50 per day.

Eligibility: Applicants should have had at least an introductory university course in developmental biology or embryology and should be fluent in English or French. Application forms and further details about the course can be obtained from: Miss Jeanne Marsolais, Assistant Director, McGill University Summer Session, P.O. Box 6070, McGill University, Montreal 101, Quebec.

Registration limited to 20 students.
Closing date for receipt of applications: March 16, 1973
April 25 — May 15 PROFESSOR WOLFSON

177-013C/014C. ENVIRONMENTAL ISSUES. (3 or 6 credits.) *The course is to be offered over a six-week period. It consists of seven modules (self-study) out of which the students may choose six (for six credits) or three (for three credits). Satisfactory completion of modules allows a maximum grade of C. For a mark of A or B, the student would also be expected to do a project.*
May 16 — June 27
First meeting: May 16, 2 p.m., Drop-in Centre, Redpath Library (2nd floor). Subsequent times to be arranged at that meeting.
(C, H.) MR. BERKES
Limited registration

3.2.2 CHEMISTRY

180-212C. INTRODUCTORY ORGANIC CHEMISTRY I. (4 credits; *Prerequisites:* 180-E10B and 180-E20A or equivalent courses.) *A survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis and spectra. Illustrative experiments.*
May 30 — June 27
8 a.m. — 10 a.m. daily
Lab: 2 p.m. — 5 p.m., Monday, Wednesday, and Friday
Lab fee. PROFESSOR HARPP
(G, U, C.) PROFESSOR FARRELL
Text: Morrison and Boyd, *Organic Chemistry,* 2nd ed., Allyn & Bacon.

180-222C. INTRODUCTORY ORGANIC CHEMISTRY II. (4 credits; *Prerequisite:* 180-212.) *Chemistry of polyfunctional organic compounds, carbohydrates, amino acids, special topics. Illustrative experiments.*
July 3 — July 31
8 a.m. — 10 a.m. daily
Lab: 2 p.m. — 5 p.m., Monday, Wednesday, and Friday
Lab fee. PROFESSOR FARRELL
(G, U, C.) PROFESSOR CHAN
Text: Morrison and Boyd, *Organic Chemistry,* 2nd ed., Allyn & Bacon.

180-201C. MODERN INORGANIC CHEMISTRY I. (3 credits; *Prerequisites:* E10B and E20A or equivalent courses.) *The course deals with the chemistry of the main group elements and their role in our everyday lives.*
July 3 — August 10
9 a.m. — 10 a.m. daily
Extra charge per student: $7.50
(G, U, C.) PROFESSOR BUTLER
Limited Registration

SUMMER SESSION

180-204C/E24C/213C. INTRODUCTORY PHYSICAL CHEMISTRY I. (3 credits; *Prerequisites:* 180-E20A plus a full course of calculus.) *First law of thermodynamics, enthalpy, thermochemistry, bond energies. Second law of thermodynamics: the entropy and free energy functions. Chemical and thermodynamic equilibrium states. Phase rule. Colligative properties of ideal solutions. Electrochemistry, electrochemical cells. Liquid and liquid surfaces. Chemical kinetics. An emphasis is placed on the use of biological examples to illustrate the principles of Physical Chemistry. The relevance of physical chemistry to biology is stressed.*
May 30 — June 27
10:30 a.m. — 12:30 p.m. daily
(U, C.)
Text: Barrow, G., *Physical Chemistry.*
PROFESSOR GALLEY
PROFESSOR SIMKIN

180-311C. INTRODUCTION TO NUCLEAR CHEMISTRY. (3 credits; *Prerequisites:* 180-E10B and 180-E20A or equivalent courses.) *The basic concepts of nuclear chemistry will be described mainly in a qualitative way. Such topics as forces within nuclei, theories of nuclear structure, radioactive decay, nuclear reactions and fission, particle accelerators and reactors, radiocarbon dating, and tracer technique will be treated.*
July 3— July 20
10:30 a.m. — 12:30 p.m. daily
(G, U, C, others — by permission of Instructor)
Text: Choppin, *Nuclei and Radioactivity* (Paperback)
PROFESSOR HOGAN

180-392C. INTEGRATED INORGANIC/ORGANIC LABORATORY. (3 credits; *Prerequisites:* 180-352 or equivalent; consult instructor.) *Application of Spectroscopy, preparation aspects of chemistry; organometallic compounds.*
July 3 — August 10
Lab: 1:30 p.m. — 5:30 p.m. Monday, Wednesday, and Friday.
Lab fee.
Limited Registration
PROFESSOR CHAN
PROFESSOR HARROD

3.2.3 **GEOGRAPHY**

183-204C. INTRODUCTION TO GEOGRAPHICAL ANALYSIS. (6 credits.) *An introduction to the application of statistical and cartographic techniques to the description, analysis and presentation of spatially distributed data.*
July 3 — August 10
Times to be announced
T. B. A.

183-404C. CONTEMPORARY GEOGRAPHY. (6 credits; *Prerequisites:* Introductory university courses in Physical *and* Human Geography.) *An analysis of the main branches of modern geography with emphasis on theoretical and methodological developments.*
July 3 — August 10
Times to be announced
T. B. A.

3.2.4 **MATHEMATICS**

189-217C. MODERN ALGEBRA. (3 credits.) *Sets; relations and operations; the natural numbers; the integers; Pythagorian triples; congruences and diophantine equations; the rational and real numbers; complex numbers and their representations; primitive roots and De Moivre's theorem.*
July 23 — August 10
1:30 p.m. — 3:30 p.m. daily
(G, U, C, H.)
PROFESSOR BARR

189-202C. CALCULUS II. (3 credits; *Prerequisite:* 189-201A CALCULUS 1.) *The Definite Integral. Techniques of antidifferentiation. Application.*
July 3 — July 20
8 a.m. — 10 a.m. daily
(G, U, C.) PROFESSOR EVANS
Text: Tierney, J. A., *Calculus and Analytic Geometry.*

189-221C. ANALYTICAL GEOMETRY AND VECTORS. (3 credits; *Prerequisite:* 189-201A CALCULUS I.) *Vectors, lines and planes, coordinate systems in three dimensions, inner products, quadric surfaces, vector valued functions.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) PROFESSOR GOWRISANKARAN
Text: Tierney, J. A., *Calculus and Analytic Geometry.*

189-222C. CALCULUS III. (3 credits; *Prerequisite:* 189-221A or C.) *Infinite series, length, curvature, partial differentiation, multiple integration.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) PROFESSOR GOWRISANKARAN
Text: Tierney, J. A., *Calculus and Analytic Geometry.*

189-245C. LINEAR ALGEBRA. (3 credits.) *Vector spaces over a field. Dimension. Algebra of matrices. Determinants. Cramer's Rule.*
July 3 — July 20
1:30 p.m. — 3:30 p.m. daily
(G — other than in the physical sciences or engineering — U, C.)
PROFESSOR MELAMED
Text: Lipschutz, S., *Theory and Problems of Linear Algebra,* Schaum.

189-315C. DIFFERENTIAL EQUATIONS. (3 credits; *Prerequisite:* 189-222A.) *First order ordinary differential equations. Linear equations with constant coefficients. Laplace transform Series solutions. Fourier series and boundary value problems. Numerical methods.*
July 23 — August 10
8 a.m. — 10 a.m. daily
(G, U, C.) PROFESSOR TAM
Text: Boyce and DiPrima, *Elementary Differential Equations and Boundary Value Problems,* 2nd ed., J. Wiley.

189-323C. INTRODUCTION TO PROBABILITY THEORY AND RANDOM VARIABLE. (3 credits; *Prerequisite:* 189-221A.) *Basic distributions and applications.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(U, C — with calculus) PROFESSOR STYAN
Text: Freund, John E., *Mathematical Statistics,* 2nd ed., Prentice-Hall, Englewood Cliffs, N.J., 1971.

189-324C. INTRODUCTION TO SAMPLING THEORY AND STATISTICAL INFERENCE. (3 credits; *Prerequisite:* 189-323A.) *Elementary significance tests including t, F and x^2. Contingency tables. Linear regression. Simple analysis of variance.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C.) PROFESSOR KOUNIAS
Text: Freund, John E., *Mathematical Statistics,* 2nd ed., Prentice Hall, 1971.

PHYSICS

3.2.5

198-E20C. ELECTROMAGNETISM: GENERAL PHYSICS III. (3 credits; *Prerequisites:* 198-E10A GENERAL PHYSICS I; 198-E11B GENERAL PHYSICS II, or 198-E26A MECHANICS; 189-E14A, B CALCULUS I.) *Ampere and volt. Ohm's Law. DC Circuits. Capacitance and inductance. RC and LC circuits. Oscilloscope. Electrical measurements. Transistors. Control systems. Feedback.*
May 16 — June 27
9 a.m. — 1 p.m. Tuesday and Thursday
Lab fee
(C.) MRS. GURR
Limited Registration

198-E32C. ELECTRICITY AND MAGNETISM. (4 credits; *Prerequisites:* 189-E81B, 189-E82A, and 198-E31B.) *Introduction to the fundamentals of electromagnetism; electrical circuits and electrical measurements. Mathematical techniques are stressed.*
May 30 — June 27
1:30 p.m. — 3:30 p.m. daily
Lab: times to be arranged
Lab fee
(C.) T. B. A.
Limited Registration
Text: Haliday and Resnick, *Physics — Part II*, Wiley & Sons.

198-E33C. WAVES AND MODERN PHYSICS. (4 credits; *Prerequisites:* 189-E82A, 189-E83B, 198-E32A or C.) *Waves in general, sound waves, wave packets, electromagnetic waves; light, reflection, and refraction, interference and diffraction, polarization; modern physics.*
July 3 — July 31
1:30 p.m. — 3:30 p.m. daily
Lab: times to be arranged
Lab fee
(C.) T. B. A.
Limited Registration
Text: French, A. P., *Vibrations and Waves* (Part 2 of the MIT Series), Norton.

3.2.6 **PSYCHOLOGY**

204-200C. INTRODUCTION TO PSYCHOLOGY. (6 credits.) *An introductory course which is a prerequisite to other courses in Psychology excluding Statistics. It deals with scientific methods as applied to the study of behaviour, the learning process, emotion, motivation, sensation, perception, intelligence, and related topics.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(G, U, C, H.) PROFESSOR MORGAN
Text: Hebb, D.O., *A Textbook of Psychology*, W. B. Saunders, Philadelphia, 3rd edition.

204-204C. INTRODUCTION TO PSYCHOLOGIGAL STATISTICS. (3 credits.) *The statistical analysis of psychological data; frequency distributions, graphic representation; measures of central tendency and variability; elementary probability theory; the normal probability curve; simple correlation methods; elementary sampling theory and tests of significance.*

July 3 — July 20
8 a.m. — 10 a.m. daily
(G, U, C, H.) PROFESSOR CORBALLIS
Text: Ferguson, *Statistical Analysis in Psychology and Education*, 3rd ed.

204-210C. GENERAL EXPERIMENTAL PSYCHOLOGY. (6 credits; *Prerequisite:* 204-200, or equivalent, or permission of instructor.) *A comprehensive review of the problems, methods and findings in various areas of psychology.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U.) PROFESSOR CAMPBELL
Limited registration

204-304C. CHILD PSYCHOLOGY. (6 credits; *Prerequisite:* 204-200 or equivalent.) *A study of current theory and knowledge about psychological processes in children, with particular attention to the development of intelligence, language and social behaviour.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) T. B. A.

204-301C. LEARNING. (3 credits; *Prerequisite:* 204-200 or equivalent.) *The phenomena of learning, emphasizing human learning, from both the theoretical and practical points of view.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(G, U, C, H.) PROFESSOR DONDERI
Texts: Borger, R., and Seaborne, A. E. M., *The Psychology of Learning*, Penguin, 1966; Smith, W. I., and Rohrman, N. L., *Human Learning*, McGraw-Hill, 1965; also, ten Bobbs-Merrill Reprints, to be announced in class.

204-302C. PERCEPTION. (3 credits; *Prerequisite:* 204-200D or C or equivalent.) *The organization of sensory input into a representation of the environment. Topics such as perception and the moving observer, pattern recognition, computers and perception, speech perception, sensory-motor rearrangements.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
(G, U, C, H.) PROFESSOR DONDERI
Texts: Day, R. H., *Human Perception*, Wiley, 1969; also ten *Scientific American* Reprints, to be announced in class.

204-305C. PSYCHOLOGICAL STATISTICS. (3 credits; *Prerequisite:* 204-204A, or B, or C.) *An introduction to the design of experiments; analysis of variance and covariance, trend analysis, correlational methods, and nonparametric statistics including the statistics of ranks.*
July 23 — August 10
8 a.m. — 10 a.m. daily
(G, U, C, H.) PROFESSOR CORBALLIS
Text: Ferguson, *Statistical Analysis in Psychology and Education* (3rd ed.)

204-332C. INTRODUCTION TO PERSONALITY. (3 credits; *Prerequisite:* 204-200D or C or equivalent.) *A broad survey of theories of personality. The student is introduced to most of the major theoretical positions.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) T. B. A.

204-337C. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (3 credits; *Prerequisite:* 204-200 or equivalent.) *A survey of the genetic, physiological and environmental origins of intellectual and emotional disorders.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) T. B. A.

204-338C. BEHAVIOUR PROBLEMS. (3 credits; *Prerequisites* 204-200 and 204-337A or C.) *An introduction to psychotic behaviour problems, character disorders, experimental methods of pathology and behaviour modification.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) T. B. A.

204-330C. INTRODUCTION TO SOCIAL PSYCHOLOGY. (3 credits; *Prerequisite:* 204-200 or equivalent.) *Introduction to basic concepts and experiments in the area of social attitudes, attitude change, and interpersonal processes.*
July 3 — July 20
10:30 a.m. — 12:30 daily
(G, U, C.) PROFESSOR TAYLOR
Text: Secord and Backman, *Social Psychology*.

3.3 FACULTY OF ENGINEERING

3.3.1 COMPUTER SCIENCE

308-100C. INTRODUCTION TO COMPUTING. (3 credits.) *Introduction to computing concepts, data representation, data flow, hardware components, software, and problem solving. Also, practical experience writing programs using simple FORTRAN language.*
May 16 — June 5
10:30 a.m. — 12:30 p.m. daily
(G, U, C, H.) MISS FOX
Computer time fee $25.
Text: Fox, B. and Ratzer, G., *Introduction to Computing — A Modular Course*, McGill University, $5.00, Room 223, Burnside Hall.

308-200C. INTRODUCTION TO COMPUTER SCIENCE. (3 credits; *Prerequisite:* 189-202 or 189-E81B or equivalent knowledge of linear algebra is desirable.) *Number systems; data representation; algorithm design; FORTRAN; computer methods including searching, sorting, solution of equations; numerical interpretation and matrix manipulation.*
May 16 — June 5
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) PROFESSOR BURRAGE
Computer time fee $30.
Texts: Ratzer, Gerald, *A Fortran Course*, Holt Rinehart, Winston, 1972; Cress, Dirksen, Graham, *Fortran IV with Watfor and Watfiv*, Prentice Hall.

308-210C. COMPUTER STRUCTURE AND ASSEMBLY LANGUAGE PROGRAMMING. (3 credits; *Prerequisite:* 308-200 or any high level programming language.) *Computer structure, machine language, instruction execution, addressing techniques and data representation. Symbolic coding, assembly systems, macros and linkage.*

July 3 — July 20
1:30 — 3:30 p.m. daily
(G, U, C.) PROFESSOR RATZER
Computer time fee $25.
Text: Vickers, F. D., *Introduction to Machine and Assembly Language Systems 360/370,* Holt Rinehart Winston.

308-230C. COMPUTERS IN DATA PROCESSING. (3 credits; *Prerequisite:* 308-200 or equivalent, or programming experience.) *Programming languages for use in data processing, principally COBOL. Comparisons with other data processing languages. System 360 facilities and job control language. Files and data bases, sort/merge.*
June 6 — June 27
10:30 a.m. — 12:30 p.m. daily
(G, U, C.) PROFESSOR PAUL
Computer time fee $50. PROFESSOR MERRETT

3.3.2 CHEMICAL ENGINEERING

302-021C. ENGINEERING THERMODYNAMICS I. (3 credits; *Prerequisite:* CALCULUS III (C.E.G.E.P.), or McGill College equivalent 189-283 or 189-284.) *Classical versus microscopic points of view, work and energy concepts in mechanics; First law; heat and internal energy thermochemistry, flow processes; use of property tabulations; Second law; reversible processes and entropy; applications to heat engine cycles and refrigeration cycles; relationships between thermodynamic properties, equations of state; estimation of fluid properties, the mechanical energy balance, phase equilibrium in single component systems.*
May 16 — June 27
2 p.m. — 3 p.m. daily
(G, U, C, or university graduates in mathematics, science, or engineering.)
PROFESSOR DEALY

3.4 FACULTY OF MANAGEMENT

280-221C. BEHAVIOURAL SCIENCE I. (3 credits.) *An introduction to social psychology. Method and theories of analysing individual and small group behaviour. Topics include person perception, social motivation, attitudes, conformity, group structure, group dynamics and leadership phenomena. Experimental approach to social and organizational behaviour is emphasized.*
May 16 — June 5
2 p.m. — 4 p.m. daily
(C, U1.) PROFESSOR KANUNGO
Texts: Freedman, J., *et al., Social Psychology,* Prentice Hall, Englewood Cliffs, N.J. 1970; Freedman, J., *et al., Readings in Social Psychology,* Prentice Hall, 1971.

280-222C. BEHAVIOURAL SCIENCE II. (3 credits; *Prerequisite:* 280-221B or C.) *An introduction to Organizational Behaviour. The social psychology of organizations, the relationship of man to the organization in which he works, his motivation, attitudes and involvement in his work. Theories of perception, motivation and leadership as they relate to organizational problems.*
June 6 — June 27
2 p.m — 4 p.m. daily
(C, U1.) PROFESSOR KANUNGO
Texts: Brown, J. A. C., *Social Psychology in Industry,* Penguin Books, Inc., Baltimore, 1954; Leavitt, H., *Managerial Psychology,* Chicago University Press, 1964.

280-271C. STATISTICS I. (3 credits; *Prerequisites:* 189-E14A, or B (201 A or B) CALCULUS I and 189-E15A or B (202A or B) CALCULUS II.) *The course introduces the student to statistical concepts and methodology, and demonstrates their application to management problems. The first part of the course covers topics in descriptive statistics: collection, analysis, and presentation of data; index numbers and time series analysis. The second part introduces the student to statistical analysis and decision-making. The topics include: probability theory, sampling distributions, introduction to decision theory, estimation, hypothesis testing.*

May 16 — June 5
10 a.m. — 12 noon daily
(U, C.) PROFESSOR TEITLEBAUM
Text: Hamburg, Morris, *Statistical Analysis for Decision Making.*

280-272C. STATISTICS II. (3 credits; *Prerequisite:* 280-271C or A.) *The course provides a second level treatment of topics in statistical analysis and decision-making, including: advanced topics in hypothesis testing, analysis of variance and experimental design, simple and multiple regression and correlation analysis, simple stochastic processes, advanced topics in statistical decision-making including Bayesian analysis.*

June 6 — June 27
10 a.m. — 12 noon daily
(U, C.) PROFESSOR TEITLEBAUM
Text: same as for Statistics I.

280-331C. MANAGEMENT INFORMATION SYSTEMS I. (3 credits.) *This course provides an introduction to computer systems and program flow-charting. Specific emphasis is placed on developing the ability to program (in FORTRAN) and utilize the resources available on the McGill time-sharing system.*

May 16 — June 5
2 p.m. — 4 p.m. daily
(G, U. C.) PROFESSOR HOWSON
Text: Ratzer, *A FORTRAN Course.*

280-373C. OPERATIONS RESEARCH I. (3 credits.) *The object of the course is to introduce the student to applications of mathematical model building and analysis in managerial decision-making. The student is introduced to some of the following topics: mathematical programming including linear programming and network analysis; simple stochastic processes including waiting lines and inventory systems; simulation.*

May 16 — June 5
10:30 a.m. — 12:30 p.m. daily
(U.) PROFESSOR SANDIFORD
Limited Registration.
Recommended pre-sessional reading: Wagner, H., *Principles of Management Science*, Prentice Hall.

280-393C. MANAGERIAL ECONOMICS. (3 credits.) *The course focuses on the application of economic theory to management problems and the economic foundations of marketing, finance, and production. Attention is given to the following topics: price and cost analysis, demand and supply analysis.*

May 16 — June 5
4 p.m. — 6 p.m. daily
(U.) PROFESSOR GORDON

280-351C. MARKETING. (3 credits.) *The role of marketing in the firm, in the economy and in society. Managerial concerns such as the measurement of marketing opportunity, product development, pricing, advertising, sales management and channel selection are discussed. Also considered are the marketing function in the non-profit organization, comparative marketing systems and social-ethical-political dimensions of modern marketing.*
June 6 — June 27
10:30 — 12:30 daily
(U1) MRS. LANE
Text: Gist, R. B., *Marketing and Society; a conceptual approach,* Holt, Rinehart, Winston.

3.5 FACULTY OF MUSIC

214-215C. INTRODUCTION TO THE ART OF MUSIC. (6 credits.) *A course designed to provide grounding in the historical styles, materials, and forms of western music as well as in related elementary theory and notation. Selected materpieces of various periods will be presented and analysed.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) PROFESSOR MARKS
Pre-sessional readings: Kerman, Joseph, *Listen,* New York, Worth Publishing Co., 1972; Langer, Susanne, *Philosophy in a New Key,* Toronto, The New American Library, 1951 (Mentor paperback); Meyer, Leonard, *Music, the Arts and Ideas,* Chicago and Toronto, University of Chicago and University of Toronto Press, 1967 (paperback).

211-121C. THEORY AND ANALYSIS. (6 credits; *Prerequisite:* McGill Theory 9 or Toronto Conservatory Theory II.) *Written skills: Melodic writing in various styles from folk and plainchant to the twentieth century. Two part textures in various styles including Renaissance and 20th century. Basic principles of tonal chord progression using triads in all inversions. Analysis: Introduction to analytical techniques. Analysis of simple textures and small forms from various musical periods.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C, H.) MR. TEDMAN
Limited Registration
Text: Hardy, G., and Fish, A., *Music Literature,* V. I., Toronto, Dodd-Mead.

211-221C. THEORY AND ANALYSIS. (6 credits; *Prerequisite:* 211-121D.) *Written skills: Two part Renaissance style counterpoint. Tonal counterpoint involving the addition of a florid part above a given bass and v.s. Common practice harmony including tonicization, simple modulation, non-chord tones, and 7th chords. Analysis of: 1) works related to written exercises, 2) principal Baroque and Classical forms including Sonata, Rondo, Fugue, and Variation, 3) 20th century neo-classical works. The works analysed will include orchestral and chamber music.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
(U, C.) PROFESSOR JONES
Limited Registration
Texts: Schoenberg, A., *Fundamentals of Musical Composition,* Faber and Faber, London; Sessions, R., *Harmonic Practice,* Harcourt, Brace & World, N.Y.

211-321C. THEORY AND ANALYSIS. (6 credits; *Prerequisite:* 211-221D.) *Written skills: Three part Tonal Counterpoint involving the addition of two florid parts over a given bass. Chromatic Harmony and complex modulation. Exercises in various 20th century styles. Analysis of: 1) works related to the written exercises, 2) 19th century music including symphonic works, 3) 20th century music including serial, aleatory, electronic works, etc.*

July 3 — August 10

10:30 a.m. — 12:30 p.m. daily

(U, C.) MR. LEWIS

Limited Registration

Texts: Brahms, *Symphony No. 2*, Boosey & Hawkes, Toronto; Bartok, *Divertimento for Strings*, Boosey and Hawkes, Toronto.

3.6 FACULTY OF RELIGIOUS STUDIES

260-280C. INTRODUCTION TO NEW TESTAMENT GREEK. (6 credits.) *An introduction to the Greek of the New Testament together with translation of selected passages from the Gospel of John.*

May 16 — June 27

7 p.m. — 9 p.m. daily

(G, U, C, H, any person with an interest in the language who does not wish to take it for University credit.)

Limited registration. PROFESSOR KIRBY

Text: Wenham, J. W., *The Elements of New Testament Greek*, Cambridge University Press, 1965.

260-617C. THE EPISTLE TO THE EPHESIANS. (Graduate half course; *Prerequisite:* New Testament Greek.) *A discussion of the various theories concerning the origin of this document followed by translation and interpretation of the text.*

May 16 — June 5

10:30 a.m. — 12:30 p.m. daily

(G) PROFESSOR KIRBY

260-683C. THE THEOLOGY OF DIETRICH BONHOEFFER. (Graduate half course; *Prerequisite:* B.A. major in religion of at least Second Class Standing, or the equivalent.) *An examination of the principal theological writings of Bonhoeffer and an attempt to assess their influence on subsequent theological trends.*

July 3 — July 20

10:30 a.m. — 12:30 p.m. daily

(G with B.A. major in religion or theology, or B.D. or B.Th. degree; others by permission of Instructor.) PROFESSOR JAY

Pre-sessional reading: Godsey, J. D., *The Theology of Dietrich Bonhoeffer*, Philadelphia, Westminster Press.

Texts: Bonhoeffer, D., *Sanctorum Communio*, London, Collins; *Christ the Center*, New York, Harper and Row; *Letters and Papers from Prison*, London, Fontana paperback.

3.7 FACULTY OF EDUCATION

3.7.1 FOR EXTRA-PROVINCIAL TEACHERS

411-592C. DEVELOPMENT OF EDUCATION IN QUEBEC.

Recent developments in Quebec's educational system are studied in an historical perspective, with particular emphasis on school organization and administration, provincial and local administrative structures, the legal status of teachers and pupils, and confessionality and bilingualism.

Students will find some advance reading helpful, especially with reference to historical background. One or more of the following is recommended:

Audet, L. P. and Gauthier, G., *Le système scolaire du Québec.*

Phillips, C. E., *The Development of Education in Canada,* Chapters 1 and 6, and pp. 218-223, 307-310.

Report of the Royal Commission of Inquiry on Education in the Province of Quebec, Volume I, Chapter 1.

For reference purposes during the course, students should have access to a recent (1966 or 1967) *Compilation of Statutes on Education,* and the Regulations of the Minister of Education, particularly Regulations 1 and 7.

Four sections:

8:00 a.m. — 9:00 a.m.	Professor Boulianne
9:00 a.m. — 10:00 a.m.	Professor Bockus
10:30 a.m. — 11:30 a.m.	Professor Boulianne
11:30 a.m. — 12:30 p.m.	Professor Bockus

Section 3 will be taught in French. Students may attend the section of their choice; but students registering in Section 3 must indicate their choice on their application form.

July 3 — August 3 $50.00

3.7.2 BACHELOR OF EDUCATION (Elementary Education) for part-time students

Admission requirements:

a) Applicants must hold a teaching certificate valid in the Province of Quebec, or its equivalent.

b) Applicants must have a Quebec Diploma of Collegial Studies standing or its equivalent (i.e. a minimum of 13 years of attested study).

Inquiries regarding course selection should be addressed to:

Professor G. W. E. McElroy
B.Ed. Co-ordinator (Part-time students)
McGill University
Faculty of Education
3700 McTavish St., Montreal 112, Quebec

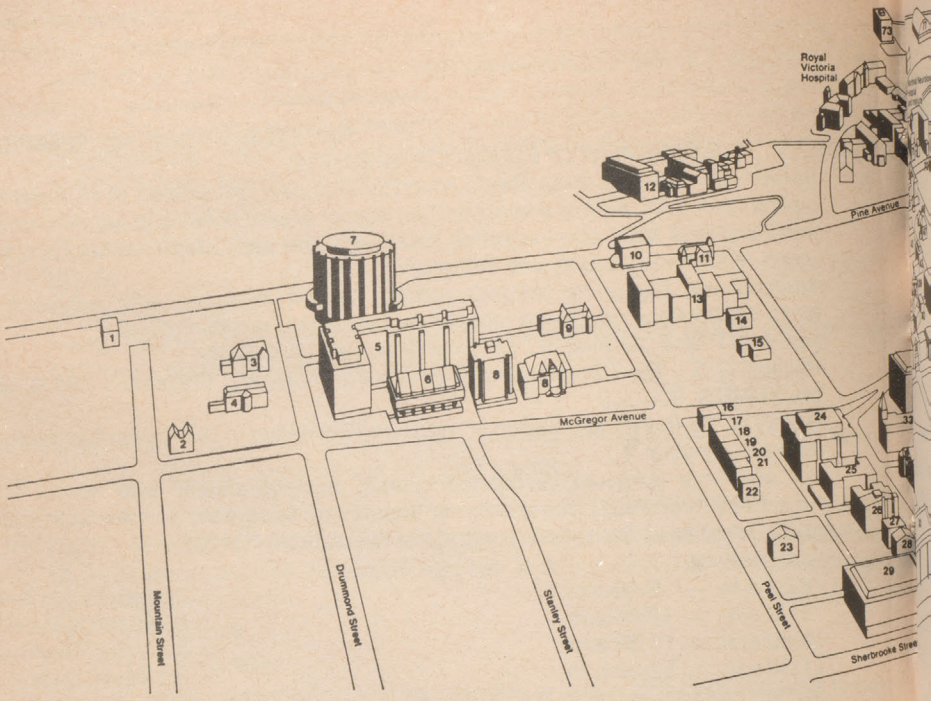
Candidates wishing to enrol in the B.Ed. program must apply to:

Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec

3.7.3 DIPLOMA PROGRAM IN READING INSTRUCTION

The Quebec Department of Education grants a Diploma in the Teaching of Reading to candidates who have successfully completed the requirements of the program and have teachers' certificates valid in the Province of Quebec. The diploma program is not intended to train clinicians, but rather to aid practising teachers in more effective developmental and corrective teaching of reading.

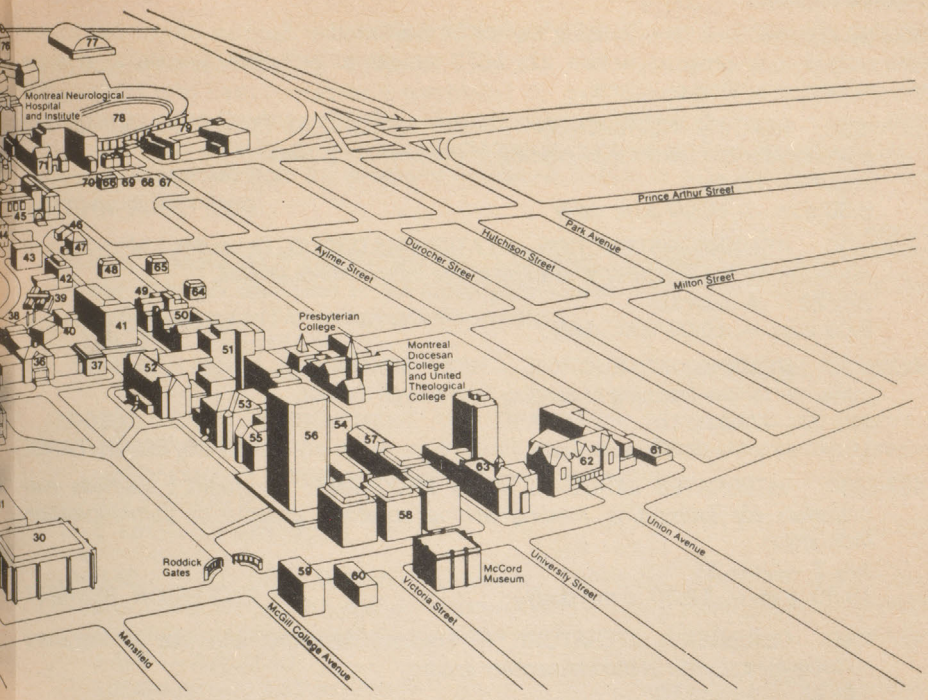
The program consists of ten 3 credit courses. Full information about the program



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Animal Centre, 7
Anthropology, 34
Anthropology of Development, 28
Architecture, 51
Archives, University, 30
Art History, 36
Arts, Faculty Offices, 37
Athletics, 79
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Bookstore, 24
Chemical Engineering, 51
Chemistry, 58
Civil Engineering, 52
Classics, 34
Computer Science, 56
Continuing Education, 59
Dentistry, Faculty Offices, 45
East Asian Language & Literature, 29
Economics, 34
Education, Faculty Offices, 13
Electrical Engineering, 51
Engineering, Faculty Offices, 52
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French Language & Literature, 25
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German Language & Literature, 29
Graduates' Society, 2
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History, 34
Instructional Communications Centre, 53
Islamic Studies, 34
Italian Language & Literature, 29
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Law, Faculty Offices, 8
Libraries:
- McLennan, 30
- Redpath, 31

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Linguistics, 29
Management, Faculty Offices, 29
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Medicine, Faculty Offices, 7
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Observatory, 55
Philosophy, 29
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Physics, 55
Physiology, 7
Political Science, 34
Psychiatry, 12
Psychology, 5
Redpath Museum, 35
Registrar, 41
Religious Studies, Faculty Offices, 49
Residences:
- Bishop Mountain Hall, Dining, 74
- Douglas Hall, 72
- Gardner Hall, 73
- McConnell Hall, 76
- Molson Hall, 76
- Royal Victoria College, 63

Russian & Slavic Studies, 29
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Social Work, 50
Sociology, 34
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Student Services & Units:
- Admissions, 41
- Aid & Counselling, 41
- Chaplaincy, 64
- Dean of Students, 41
- Entrepreneurial Agency, 28
- Post-Graduate Students' Society, 15
- Guidance, 66
- Health, 69
- Placement, 48
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1 Beatty Hall
2 Graduates' Society
3 Davis House
4 Hosmer House
5 Stewart Biological Sciences
6 Greenhouses
7 McIntyre Medical Sciences
8 Chancellor Day Hall
9 Mental Hygiene Institute
10 Purvis Hall
11 Duggan House
12 Allan Memorial Institute
13 Faculty of Education
14 Hugessen House
15 David Thomson House
16 3511 Peel Street
17 3495/91 Peel Street
18 3487 Peel Street
19 3483 Peel Street
20 3479 Peel Street
21 3475 Peel Street
22 3465 Peel Street
23 3437 Peel Street
24 University Centre
25 Peterson Hall
26 Faculty Club
27 3438 McTavish Street
28 3434 McTavish Street
29 Samuel Bronfman Bldg.
30 McLennan Library
31 Redpath Library
32 Redpath Hall
33 Morrice Hall
34 Stephen Leacock Bldg.
35 Redpath Museum
36 Arts Bldg.
37 Dawson Hall
38 840 McGregor
39 Old Greenhouse
40 Stationery Stores
41 F. Cyril James Bldg.
42 Foster Radiation Laboratory
43 Eaton Electronics Laboratory
44 Donner Bldg.
45 Strathcona Anatomy & Dentistry Bldg.
46 3618 University Street
47 3600 University Street
48 3574 University Street
49 William & Henry Birks Bldg.
50 Wilson Hall
51 McConnell Engineering Bldg.
52 Macdonald Engineering Bldg.
53 Macdonald Chemistry Bldg.
54 Frank Dawson Adams Bldg.
55 Macdonald Physics Bldg.
56 Burnside Hall
57 Pulp & Paper Institute
58 Otto Maass Chemistry Bldg.
59 Strathcona Hall
60 762 Sherbrooke Street W.
61 Women's Athletics
62 Strathcona Music Bldg.
63 Royal Victoria College
64 3521 University Street
65 3587 University Street
66 522 Pine Avenue W.
67 505 Pine Avenue W.
68 509 Pine Avenue W.
69 515/517 Pine Avenue W.
70 527 Pine Avenue W.
71 Pathology Bldg.
72 Douglas Hall
73 Gardner Hall
74 Bishop Mountain Hall
75 Molson Hall
76 McConnell Hall
77 McConnell Winter Stadium
78 Molson Stadium
79 Sir Arthur Currie Memorial Gymnasium

may be obtained from the Reading Centre or the Summer Session Office. Candidates who started their program before July 1972 should contact Prof. Greene to arrange the completion of their programs.

427-223C. READING INSTRUCTION — EARLY CHILDHOOD. (3 credits.) *Methods and materials for the teaching of reading in the primary grades.*
July 3 — July 20
8:00 a.m. — 10:00 a.m. daily PROFESSOR WHITTON

427-233C. READING INSTRUCTION — LATER CHILDHOOD. (3 credits.) *Methods and materials for the teaching of reading in the intermediate grades.*
July 23 — August 10
8:00 a.m. — 10:00 a.m. daily PROFESSOR RUSSELL

427-523C. READING INSTRUCTION — HIGH SCHOOL. (3 credits.) *Methods and materials for the teaching of reading in the High School.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily PROFESSOR EARLE

427-533C. INTEGRATED LANGUAGE ARTS PROGRAMS. (3 credits.) *Methods and materials for integrating reading/writing/speaking aspects of communication instruction.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily PROFESSOR BENNETT

427-326C. CHILDREN'S LITERATURE. (3 credits.) *Selection and use of literature suitable for children in the elementary grades.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily PROFESSOR DOLAN

The corrective practicums are limited to candidates who have already completed two reading instruction courses. The two practicums required of the diploma program are done over one summer making a six week session. Because these are practicums rather than courses, they meet for more than the usual number of contact hours and no other courses can be taken during the practicum summer.

The following three courses will be held at Guy Drummond School, 1475 Lajoie, Montreal:

427-224C. CORRECTIVE READING INSTRUCTION — EARLY CHILDHOOD. (3 credits.) *Reading problems at a readiness and basic decoding level presented in a practicum format covering classroom diagnosis and remediation.*
July 3 — July 20, 9 a.m. — 1 p.m. daily, section 1.
July 23 — August 10, 9 a.m. — 1 p.m. daily, section 2.
(Prerequisite: 427-223.) PROFESSOR GREENE AND STAFF

427-234C. CORRECTIVE READING INSTRUCTION — LATER CHILDHOOD. (3 credits.) *Reading problems beyond the readiness and basic decoding level presented in a practicum format covering classroom diagnosis and remediation.*
July 3 — July 20, 9 a.m. — 1 p.m. daily, section 1.
July 23 — August 10, 9 a.m. — 1 p.m. daily, section 2.
(Prerequisite: 427-233.) PROFESSOR GREENE AND STAFF

427-577C. CORRECTIVE READING INSTRUCTION — HIGH SCHOOL. (3 credits.) *Reading problems found in remedial reading classes at the high school level presented in a practicum format covering diagnosis and remediation appropriate for remedial classrooms.*
July 3 — July 20, 9 a.m. — 1 p.m. daily, section 1.
July 23 — August 10, 9 a.m. — 1 p.m. daily, section 2.
(Prerequisite: 427-523.) PROFESSOR GREENE AND STAFF

3.7.4 DIPLOMA PROGRAM FOR KINDERGARTEN SPECIALISTS

The Quebec Department of Education grants a Kindergarten Specialist Diploma to candidates who have successfully completed the program and have teachers' certificates valid in the Province of Quebec. The program consists of the courses listed below and additional courses equivalent to six credits. It is recommended that the additional courses be selected from the programs in Special Education or in Reading Instruction.

1st Summer

429-212C. MUSIC FOR KINDERGARTEN TEACHERS. (3 credits.) *Contemporary methods in music education at the kindergarten level; development of musical skills through group and individual practice sessions.*
July 23 — August 10
8 a.m. — 10 a.m. daily
PROFESSOR MCDONALD

427-328C. CREATIVE MOVEMENT AND DRAMATICS. (3 credits.) *Experiences in creative drama and the dynamics of space; body movement, improvisation, creative problem solving, control and release of emotional energy.*
July 3 — July 20
8 a.m. — 10 a.m. daily
MRS. RUSSEL

414-214C. CHILD DEVELOPMENT. (6 credits.) *The social, emotional, psychological and intellectual growth and development of the young child; guided observation of children; seminars; reports; individual readings.*
July 3 — August 10
10:30 a.m. — 12:30 p.m. daily
MRS. GARFINKLE

2nd Summer

433-312C. METHODS AND MATERIAL FOR THE KINDERGARTEN. (3 credits.) *Analysis of the kindergarten environment with emphasis on equipment, materials, and suggestions for their use.*
July 3 — July 20
8 a.m. — 10 a.m. daily
Limited Registration
MRS. BROWN

427-327C. CREATIVE DRAMATICS AND CHILDREN'S LITERATURE. (3 credits; *Prerequisite:* Creative Movement and Dramatics, 427-328.) *Experiences in characterization, story making, story dramatization; an exploration of the elements of drama and dramatic literature.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
MRS. RUSSEL

426-212C. ART FOR KINDERGARTEN TEACHERS. (3 credits.) *Exploration of a variety of art media suitable for the kindergarten child; relationships of line, colour and texture; development of manipulative skills and the child's perceptual awareness of his environment.*
July 23 — August 10
8 a.m. — 10 a.m. daily
Limited Registration
MRS. FOIXET-STUDHAM

414-314C. DEVELOPMENTAL TESTING OF YOUNG CHILDREN. (3 credits; *Prerequisite:* Child Development 414-214.) *Guided observation of children with emphasis on developmental testing. Lectures, demonstrations and testing practicum.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
PROFESSOR LEARD

3.7.5 DIPLOMA IN SPECIAL EDUCATION COURSES FOR TEACHERS OF CHILDREN WITH LEARNING DIFFICULTIES

The Faculty of Education and the Provincial Department of Education have established a three-summer program leading to a diploma in Special Education for teachers of children with learning difficulties.

Application for admission to this special course must be accompanied by references from school principals or other officials to certify that the applicant possesses the qualifications necessary for this type of teaching.

Classes begin at 8 a.m. on July 3, and timetables will be distributed at that time.

3.7.5.1 Phase I

414-340C. EDUCATION OF EXCEPTIONAL CHILDREN. (3 credits.) *Introduction to the education of exceptional children; characteristics, classification, needs of exceptional children; developmental and corrective programs; areas of current research.* MR. LITTLE MR. MINTO

414-341C. GENERAL METHODS IN SPECIAL EDUCATION. (3 credits.) *Class organization, teaching methods, assessments of educational level, setting objectives, grouping, individual programming, and reporting.* MRS. PRICE MR. LITTLE

414-342C. ORGANIZATION OF SPECIAL EDUCATION PROGRAMS. (3 credits.) *Needs of EMR, slow-learning and emotionally disturbed children: characteristics, school programs, evaluation of progress, integration into the community.* MRS. PRICE MR. ISENBERG

414-343C. INTRODUCTION TO DIAGNOSIS AND ASSESSMENT. (3 credits.) *Principles and procedures in the evaluation of pupil growth and achievement. Emphasis on the use and interpretation of tests to be given by the class teacher.* T. B. A.

3.7.5.2 Phase II

414-440C. COGNITIVE AND PSYCHOMOTOR PROBLEMS OF EXCEPTIONAL CHILDREN. (3 credits.) *Teaching methods appropriate to individual and small group instruction to overcome a variety of learning problems. Emphasis on perceptual difficulties.* T. B. A.

414-441C. BEHAVIOURAL PROBLEMS OF EXCEPTIONAL CHILDREN. (3 credits.) *Teaching methods appropriate to the needs of pupils with emotional and behaviour problems. Methods presented will include behaviour modification techniques.* T. B. A.

414-442C. PSYCHOLOGY OF LEARNING PROBLEMS. (3 credits.) *The Learning Process; personality development; perceptual dysfunction, behaviour disorders and other handicapping conditions related to learning.* T. B. A.

414-443C. SCHOOL-HOME-COMMUNITY RELATIONS IN SPECIAL EDUCATION. (3 credit.) *Influence of home and community on the child, teacher-parent interviews, reporting, co-operation hospital clinics, other professionals, etc.* T. B. A.

3.7.5.3 Phase III

414-344C. PRACTICUM IN DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS. (3 credits.) *A supervised practicum in the use of various tests and measures in learning problems of children; developing prescriptive teaching programs.* T. B. A.

414-444C. MATERIALS IN SPECIAL EDUCATION (3 credits.) *A critical examination of materials available for special educational programs, commercial and teacher-made materials; the application of A-V techniques to Special Education.* T. B. A.

414-445C. VOCATIONAL HABILITATION OF EXCEPTIONAL CHILDREN. (3 credits.) *Vocation requirements of non-academic children, vocational preparation as a responsibility of the special class teacher, placement services, follow-up.*
MR. HEIMRATH

414-446C. SPECIAL TOPICS IN THE EDUCATION OF EXCEPTIONAL CHILDREN. (3 credits.) *A seminar or workshop approach to selected topics in the field of Special Education. Examples of possible topics include Language Development, Educable Retarded Adolescents, and Behaviour Modification.* T. B. A.

3.7.6 DEPARTMENT OF EDUCATION IN ART

426-206C; 426-207C; 426-394C; 426-395C. GRAPHICS WORKSHOP. (3 credits; *Prerequisite:* An introductory course in graphics or permission of the Instructor.) *A continued development of the basic graphic art skills pertaining to woodcuts, copper etching, and related activities.*
July 3 — July 20
July 23 — August 10
9 a.m. — 12 noon
Limited Registration
(Students registering for the first three-week period will receive three credits. Students taking the second three-week period after having successfully completed the first, will receive an additional three credits.) PROFESSOR WHITE

426-209C. CERAMICS II. (3 credits; *Prerequisite:* Ceramics 426-208A or B; 6B4-303 or permission of the Instructor.) *Workshop. Exploration of individual problems from the areas of forming, decoration, glazing, and kiln procedures.*
July 23 — August 10
9 a.m. — 12 noon daily
Limited Registration PROFESSOR STUDHAM
Text: Rhodes, Daniel, *Clay and Glazes for the Potter.*

426-398C & 426-399C. CANADIAN ART HISTORY. (6 credits.) *398: The visual environment, European sources and influences involved in architecture, painting, and applied arts, 1600 to 1867. 399: The growth of Canadian art as evidenced through changing visual environment, 1867 to the present.*
July 3 — August 10
9 a.m. — 12 noon daily
Field trips.
Limited Registration PROFESSOR PAPKE
Pre-sessional readings: Parlardy, *French Canadian Furniture;* Leacock, *Montreal, Seaport and City;* MacRae, *The Ancestral Roof;* Lessard and Marquis, *Encyclopédie de la maison du Québec;* Harper, *Canadian Painting;* Gowans, A., *Building Canada.*

426-205C. PAINTING. (3 credits; *Prerequisite:* 426-204.) *Investigation of media, tools, techniques primarily through studies of natural forms; the human figure.*
July 23 — August 10
1:30 p.m. — 4:30 p.m. daily
Limited Registration PROFESSOR WATLING

426-204C. DRAWING. (3 credits.) *Development of draughtsmanship; exploration of various forms of graphic expression; various media.*
July 3 — July 20
1:30 p.m. — 4:30 p.m. daily
Limited Registration PROFESSOR WATLING

3.7.7 **DEPARTMENT OF EDUCATION IN ENGLISH**

427-594C. CREATIVE DRAMA FOR THE CLASSROOM. (3 credits. Academic Course.)
July 3 — July 20
1:30 p.m. — 3:30 p.m. daily
Limited Registration
PROFESSOR HEARSEY

3.7.8 **DEPARTMENT OF EDUCATION IN MATHEMATICS AND SCIENCE**

417-241C. BACKGROUND SCIENCE FOR ELEMENTARY SCHOOL TEACHERS. (3 credits. Academic course.) *This course presents science as a means of exploring and explaining our environment. A study of some of the fundamental concepts common to most elementary programs.*
July 3 — July 20
8 — 10 a.m. daily
PROFESSOR P. FRANCOEUR

428-241C. BACKGROUND MATHS FOR ELEMENTARY SCHOOL TEACHERS. (3 credits. Academic Course.) *A course specially designed for elementary school teachers to provide the basic foundations, insight and understanding of the Quebec modern elementary mathematics program.*
July 23 — August 10
8 — 10 a.m. daily
PROFESSOR LEAD
Text: Graham, *Modern Maths for Elementary School Teachers*, Harcourt Brace.
Pre-sessional readings: Chapters 1 to 5 in text.

417-578C. PHYSICS CURRICULUM AND INSTRUCTION - SECONDARY SCHOOL. (6 credits.) *A course designed to help teachers present a secondary school physics course using the philosophy and techniques of the Physical Science Study Committee (PSSC Physics).*
July 3 — August 10
9 a.m. — 11 a.m. daily
PROFESSOR LANDRY

3.7.9 **EDUCATIONAL MEDIA CENTRE**

432-204C. INTRODUCTION TO EDUCATIONAL MEDIA (MEDIA I). (3 credits.) *A study of the application of educational media to the elementary and secondary school teaching and learning situation, including rationale and underlying principles. The sources, selection, production, effective utilization and evaluation.*
July 3 — July 20
8 a.m. — 10 a.m. daily
PROFESSOR JONES

432-205C. PROJECTED MEDIA. (3 credits.) *A study of the educational significance of various projected media: 16 mm films, 8 mm films, 35 mm film slides, multi media presentations. The utilization of such media, teacher or student production.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
PROFESSOR POLLARD

432-306C. EDUCATIONAL TV. (3 credits.) *This course will survey the development of ETV with particular reference to current topics including children's TV programs, cable and closed circuit ETV. Short TV productions will take place in class to encourage a critical analysis of the potential of portable TV equipment for local teacher and student production.*
July 23 — August 10
8 a.m. — 10 a.m. daily
PROFESSOR POLLARD

3.7.10 **DEPARTMENT OF EDUCATION IN SECOND LANGUAGES**

431-542C; 431-543C. TEACHING FRENCH AS A SECOND LANGUAGE — ELEMENTARY SCHOOL. (6 credits; *Prerequisite:* a good command of French.) *Principles of Second Language teaching and learning objectives and curriculum. Teaching*

techniques and materials. Examination and preparation of class materials. Lesson planning; experience in macro-teaching situations.
431-542C: July 3 — July 20
8 a.m. — 10 a.m. daily
431-543C: July 23 — August 10
8 a.m. — 10 a.m. daily
Limited Registration
PROFESSOR WHITE

431-572C. TEACHING FRENCH AS A SECOND LANGUAGE — SECONDARY SCHOOL. (6 credits; *Prerequisite:* a good command of oral and written French.) *Objectives and curriculum in a secondary school perspective. Examination and preparation of teaching materials. Testing. New instructional strategies. Individualized instruction.*
July 3 — August 10
8 a.m. — 10 a.m. daily
PROFESSOR BUTEAU
Pre-sessional reading: Rivers, Wilga, *Teaching Foreign Language Skills,* Chicago University Press, 1969
Texts: Le Français dans le monde no. 65 *(Guide pédagogique);* and no. 73 *(Le Niveau 2).* At least two French textbooks actually used in Québec High Schools.

431-501C. LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING. (3 credits.) *An introduction to general and contrastive linguistics in a second language teaching perspective; a study of the areas of interference; preparation and evaluation of teaching materials from a linguistics point of view.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
PROFESSOR BUTEAU

431-557C/577C. TEACHING ENGLISH AS A SECOND LANGUAGE. (6 credits.) *Descriptive view of ESL situation in Quebec; objectives and curriculum. An examination of programs and methods, teaching techniques and media; lesson planning and evaluation.*
July 3 — August 10
8 a.m. — 10 a.m. daily
Limited Registration
MR. CHARBONNEAU
Texts: Lado, Robert, *English as a Second Language, a Scientific Approach; Linguistics Across Culture.*

431-345C. THE BILINGUAL CLASS. (3 credits; *Prerequisite:* excellent fluency in French.) *A study of bilingual education programs, their rationale and format, observation of bilingual classes; training in teaching other subjects in French.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
T. B. A.
Pre-sessional readings: Slobin, Dan, *Psycholinguistics,* Toronto, Scott, Foresman & Co., 1971; Torrey, Jane W., *Learning Language,* N.Y. Appleton-Century Croft, 1971; Carroll, John B., *Language & Thought,* Prentice Hall, 1964.

431-304C. CULTURAL CONTENT. (3 credits; *Prerequisite:* excellent fluency in French.) *Study of the Quebec socio-cultural scene, contacts with francophone cultural and educational institutions; preparation of class materials related to Quebec.*
July 23 — August 10
10:30 a.m. — 12:30 p.m. daily
PROFESSOR LOBELLE
Pre-sessional readings: Rioux, Marcel, *La question du Québec,* Seghers, 1969; Hall, Edward T., *The Silent Language,* Fawcet Pocketbook, 1959; Nostrand, Howard L., *Describing and Teaching the Sociocultural Context of a Foreign Language and Literature in* Valdman, Albert, ed., *Trends in Language Teaching,* McGraw-Hill, 1966.
Text: Five consecutive week-end editions of *La Presse* (month of June).

3.7.11 DEPARTMENT OF EDUCATION IN SOCIAL SCIENCES

430-533C. COMPARATIVE SOCIAL STUDIES. (3 credits: *Prerequisite:* 430-532.)*Methods of using historical and geographical comparative case studies as a means of deepening the elementary school child's understanding of his own social and economic environment.*

July 3 — July 20
10:30 a.m. — 12:30 p.m. daily
Limited Registration MR. BRADLEY

Texts: Wurman, *Yellow pages of Learning,* M.I.T. Press; Joyce, B. R., *New Strategies for Social Education,* S.R.A.

430-453C. *AWAITING APPROVAL:* FIELDWORK IN SCHOOL GEOGRAPHY. (3 credits; *Prerequisite:* 430-372D or permission of the Department.) *Practical experience in developing and evaluating field work assignments for use with high school geography classes in both rural and urban settings. On five days of this course students will do field work at Mont St. Hilaire. Those who cannot commute to this field site and who elect to stay in residence during this period will need to pay a fee for room and board not expected to exceed $35.*

Students taking this course may not register in another course from July 23 to August 10.

July 23 — August 10
1:30 p.m. — 3:30 p.m. daily plus field trips
Limited Registration PROFESSOR BURPEE

Texts: Briggs, K., *Fieldwork in Urban Geography,* Edinburgh, Oliver & Boyd; Boon, G., *Townlook I: Observing and Recording by Maps in Urban Areas,* London, Pergamon Press; Cross, M. F., and Daniel, P. A., *Fieldwork for Geography Classes,* London, McGraw-Hill; Archer, J. E., and Dalton, T. H., *Fieldwork in Geography,* London, Batsford.

430-532C. LOCAL AND COMMUNITY STUDIES. (3 credits.) *Methods of studying the physical, social and economic aspects of the community with particular reference to the objectives and structure of the Quebec elementary social science curriculum.*

July 3 — July 20
1:30 — 3:30 p.m. daily
Limited Registration PROFESSOR WINTER

Text: Winter, Eric, *Urban Landscapes,* Bellhaven House, Bellamy Road, Scarborough, Ontario.

Pre-sessional reading: The above text.

3.7.12 TEACHERS' CERTIFICATION PROGRAM

The following are the requirements for admission to this program:

1) Successful completion of Phase II in 1972.
2) Evidence of successful teaching during the past school year.
3) Employment as a teacher during the school year 1972-73.

3.7.12.1 Secondary Option and Art, French and Music Specialists

Required Courses

413-500C. PHILOSOPHY OF EDUCATION. *A survey of philosophical developments in Western education and contemporary issues. Seminars on selected topics. Students will be notified before the start of classes as to which section they have been assigned.*

July 3 — August 3
Sections 1 to 5: 8 a.m. — 10 a.m. daily PROFESSOR COCCALIS
Sections 6 to 10: 10:30 a.m. — 12:30 p.m. daily PROFESSOR LIPKIN
PROFESSOR RYAN
T.B.A.

414-500C. EDUCATIONAL PSYCHOLOGY.
Seminars on selected topics.
July 3 — August 3
Sections 1 to 3: 8 a.m. — 9 a.m. daily
Sections 4 to 6: 9 a.m. — 10 a.m. daily
Sections 7 to 9: 10:30 a.m. — 11:30 a.m. daily
Sections 10 to 12: 11:30 a.m. — 12:30 p.m. daily T. B. A.

411-592C. DEVELOPMENT OF EDUCATION IN QUEBEC.
(see section 3.7.1)

Candidates will register for ONE of the following courses. Each course consists of individual study and an essay. The topic of the essay must be approved by the Instructor. Candidates should attempt to complete the course requirements before July 1, 1973.

426-573C. ART, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR STUDHAM

427-573C. ENGLISH, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR O'HARA
PROFESSOR EMERY

417-573C. SCIENCE, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
BIOLOGY — PROFESSOR SEARLES
CHEMISTRY — PROFESSOR SEARLES
PHYSICS — PROFESSOR LANDRY

428-573C. MATHEMATICS, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR MODAFFERI
PROFESSOR PURDY

415-503C. RELIGIOUS RESPONSE IN THE SECONDARY SCHOOL — ADVANCED.
PROFESSOR T. FRANCOEUR

429-573C. MUSIC, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR BOOKER

430-573C. GEOGRAPHY, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR BURGESS

430-576C. HISTORY, CURRICULUM AND INSTRUCTION — ADVANCED — SECONDARY SCHOOL.
PROFESSOR SMITH

431-573C. IN-DEPTH STUDY OF CURRICULUM DEVELOPMENT IN SECOND LANGUAGES.
FRENCH — PROFESSOR BUTEAU
MODERN LANGUAGES — PROFESSOR LOBELLE
ENGLISH — PROFESSOR WATTERS

433-573C. HUMAN AND RELIGIOUS VALUES, CURRICULUM AND INSTRUCTION — SECONDARY SCHOOL.
PROFESSOR MacNEILL

3.7.12.2 **Elementary Option**

Required Courses

413-502C. SOCIAL FOUNDATIONS OF EDUCATION. *A survey of historical and philosophical developments of Western education.*
July 3 — Aug. 3
Section 1: 8 a.m. — 9 a.m. daily
Section 2: 9 a.m. — 10 a.m. daily T. B. A.

SUMMER SESSION

414-500C. EDUCATIONAL PSYCHOLOGY.
July 19 — August 3
10:30 a.m. — 12:30 p.m. daily PROFESSOR CARTWRIGHT

411-592C. DEVELOPMENT OF EDUCATION IN QUEBEC. (See section 3.7.1)

3.7.12.3 **Optional Courses**

Candidates will choose ONE of the following courses. Each has a limited enrolment.

433-544C. TOPICS IN ELEMENTARY EDUCATION. *Selected topics in contemporary approaches to Elementary Education.*
July 3 — July 18
10:30 a.m. — 12:30 p.m. daily PROFESSOR MacRAE

432-203C. EDUCATIONAL MEDIA.
July 3 — July 18
10:30 a.m. — 12:30 p.m. daily PROFESSOR JONES

427-349C. CHILDREN'S LITERATURE.
July 3 — July 18
10:30 a.m. — 12:30 p.m. daily PROFESSOR CREAGHAN

427-599C. CREATIVE DRAMATICS FOR THE CLASSROOM.
July 3 — July 18
10:30 a.m. — 12:30 p.m. daily PROFESSOR HEARSEY
Pre-sessional readings: Piaget, *The Logical Growth of Thinking;* McCaskin, Nellie, *Creative Dramatics in the Classroom.*
Texts: Way, Brian, *Development Through Drama;* Slade, Peter, *An Introduction to Child Drama;* Barnfield, Gabriel, *Creative Drama in Schools.*

3.7.13 DIPLOMA IN TECHNICAL-VOCATIONAL OR BUSINESS EDUCATION

July 3 to August 3. Fee: $225.00 per summer of 125 hours.

Requirements for the Diploma

Candidates will normally be expected to follow courses over a three-summer period. Each candidate's credentials will be individually evaluated and a program of studies outlined.

Prerequisites for Admission

1. For admission to courses leading to the Diploma (Technical-Vocational or Business Education Division) a candidate must normally have completed Quebec Grade XI or its equivalent.
2. In addition to the above requirements a candidate must:
   a) be a graduate of a recognized professional training institution (e.g. University, CEGEP, Business College, Technical Institute, Trade School) in appropriate subjects
   OR
   b) possess journeyman's papers and have satisfactory work experience
   OR
   c) in occupations where journeyman's papers are not provided have at least six years relative experience in industry or business.
3. Candidates must:
   a) have successfully completed any phases of the program taken in previous summers
   b) have evidence of successful teaching during the past school year

c) hold a valid Provisional Teaching Authorization
d) be under contract to teach Technical-Vocational or Business subjects full-time at the secondary level for the next school year.

New candidates wishing to qualify for a diploma are urged to commence evaluation procedures as soon as possible. *No candidate will be admitted to the program until his credentials have been evaluated and an acceptance of admission has been given by the university.*

Course Requirements

Having satisfied the prerequisites a further 400 course hours (30 credits) are needed to meet the requirements for certification.

The maximum course load for one summer is 125 course hours (10 credits) and is normally supplemented by a research project — Course 436-264C — during the winter between the second and third summers.

By decision of the Provincial Classification Committee holders of a Diploma in Technical-Vocational or Business Education are entitled to credit for one year of scolarité for three full summers in the program.

Courses for Upgrading

Courses may be taken by certificated teachers for upgrading. To obtain credit these must be courses containing new work not previously taken. By decision of the Provincial Classification Committee three full summers equate to one year of scolarité. One full summer entitles the teacher to credit for ⅓ year scolarité (10 credits) and two full summers to ⅔ year scolarité (20 credits).

Selection of Courses

Candidates are reminded that the following courses are *compulsory* and must be taken before meeting the requirements for certification:—

436-260C. Teaching Methods
436-261C. Organization and Administration (Technical students only)
436-271C. Organization and Administration (Business students only)
436-205C. Introduction to Education Psychology
436-206C. Educational Evaluation
436-202C. Development of Education in Quebec
436-264C. Research Problems

Language Requirement

Candidates may be required to prove proficiency in the language of instruction prior to recommendation for certification.

Supplies

Students will be required to pay the actual cost of all materials used in the construction of special projects and other assignments. Such materials will be made available at the summer school.

Texts

Lists of required texts and suggested supplementary texts and pre-reading will be sent to candidates prior to summer school. Required texts will be available at summer school.

Location of Summer School

Riverdale High School, 5060 Sources Road, Pierrefonds, Quebec.

Any inquiries and applications concerning these programs should be directed to: Professor F. Jack Young, Faculty of Education, McGill University, 3700 McTavish Street, Montreal 112, Quebec.

436-260C. TEACHING METHODS IN TECHNICAL-VOCATIONAL EDUCATION. *Methods and techniques of instruction in technical/vocational subjects. The course will include the teaching-learning process, lesson planning, instructional techniques and the role of media in education, individual assignments and reports.*
One hour per day
9:35 — 10:40 a.m. MR. GLISMAN
12:45 — 1:45 p.m. MR. PAUTLER

436-261C. ORGANIZATION AND ADMINISTRATION IN TECHNICAL/VOCATIONAL EDUCATION. *This course deals with the principles of effective management, safe planning, architectural considerations, material and tool control, purchasing and maintenance of equipment, student personnel, and teacher responsibilities.*
One hour per day 1:50 — 2:50 p.m. MR. PAUTLER

436-271C. ORGANIZATION AND ADMINISTRATION OF BUSINESS EDUCATION. *A course designed to investigate the place of business education in the secondary school curriculum and to indicate to the beginning teacher the need for good planning and administration in the classroom routine and to develop an ability to evaluate various aids to the learning process.*
One hour per day 9:35 — 10:40 a.m. MR. KALUZA

436-262C. HISTORY AND PHILOSOPHY OF TECHNICAL/VOCATIONAL EDUCATION. *A presentation of the origin and evolution of technical-vocational education. Motivating influences affecting the movement: a study of principles and trends; federal and provincial legislation, relating to a modern program of technical/vocational education as it relates to the total plan of public education.*
One hour per day 12:45 — 1:45 p.m. MR. AIKMAN

436-263C. CURRICULUM DEVELOPMENT IN TECHNICAL/VOCATIONAL EDUCATION. *Curriculum organization of technical/vocational education in harmony with the needs of contemporary society. Readings, discussions, terminology, aims and objectives, analysis, instructional units, principles of course organization and planning of curricula for specific community situations.*
One hour per day 11:00 — 12:00 noon MR. GLISMAN
One hour per day 3:00 — 4:00 p.m. MR. PAUTLER

436-463C. CURRICULUM DEVELOPMENT IN TECHNICAL/VOCATIONAL EDUCATION. (Not offered in 1973.) *An advanced course in curriculum organization of technical/vocational education using similar criteria as outlined in 436-263C but including an in-depth curricular study presentation.*
Prerequisite: Permission of coordinator.

436-209C. INSTRUCTIONAL MATERIALS IN TECHNICAL/VOCATIONAL EDUCATION. *Theory and use of instructional aids, criteria for selection of media, operation and care of equipment, production of materials and their application in the shop and laboratory. Recent developments in educational aids.*
Two hours per day 8:30 — 10:40 a.m. MR. HATTER
Two hours per day 12:45 — 2:50 p.m. MR. GARDNER

436-205C. INTRODUCTION TO EDUCATION PSYCHOLOGY. *An examination of the factors influencing learning, intelligence, individual differences, and personality. Attention to the study of learning theories, intelligence, transfer, evaluation, and learning situations as they occur in the classroom. Vocational guidance will also be considered.*
One hour per day 9:35 — 10:40 a.m. MR. WELCH

436-206C. EDUCATIONAL EVALUATION. *Emphasis is placed on student growth and progress in public education. Appraisal of various techniques and instruments of evaluation by familiarization with teacher-made tests, statistical data analysis and psychological tests.*
One hour per day 11:00 — 12:00 noon MR. WELCH

436-202C. DEVELOPMENT OF EDUCATION IN QUEBEC. *The history and administrative practice of education in the Province of Quebec including school law, curriculum and procedures. Please refer to the qualifying course for Extra-Provincial Teachers entitled DEVELOPMENT OF EDUCATION IN QUEBEC for course description and reading list. See section 3.7.1*
One hour per day 8:30 — 9:30 a.m. MR. TRICKEY

436-264C. RESEARCH PROBLEMS IN TECHNICAL/VOCATIONAL EDUCATION. (Directed study.) *To provide individualized instruction and analysis in a specialized area of technical/vocational and business education. The student may select a problem which equates to other courses from the standpoint of scholarship, time requirements and utilitarian value, and develop the problem into a practical document.*
N.B. — Restricted to students in last year of program.
As directed, 25 or 50 hours. STAFF

436-265C/465C. RESEARCH PROBLEMS IN TECHNICAL/VOCATIONAL EDUCATION. (Work Study). *Preparation for and participation in a work-study program. This course is designed to up-date practising technical-vocational and business education teachers.*
Five hours per day for two weeks
July 3 — July 13
Three weeks on location in a selected industry
July 16 — August 3
N.B. — By permission of coordinator — limited enrolment. Not open to candidates in first year program. STAFF

436-366C. INTRODUCTION TO TECHNOLOGY. *A methods course to prepare candidates to teach the* Introduction to Technology *course at the Secondary II level.*
Five hours per day
July 3 — July 27
N.B. — (1) By permission of coordinator.
(2) Limited enrolment. Open only to qualified Technical-Vocational teachers.
(3) *Course does not form part of basic certification program.* MR. PANNETON

436-180C. WOODWORKING TECHNOLOGY. (Not offered in 1973.) *Fundamentals of bench and machine woodworking; selection of materials, design, layout, fabrication and finishing of projects related to a general woodworking program, safe use and maintenance of hand and power tools.*

436-280C. WOODWORKING TECHNOLOGY. (Not offered in 1973.) *Further study in the fundamentals of bench and machine woodworking. Related technology and technical reports. Prerequisite:* 436-180C or equivalent standing.

436-380C. WOODWORKING TECHNOLOGY. (Not offered in 1973.) *The methods of teaching woodworking technology as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the successful teaching of woodworking.*

436-480C. WOODWORKING TECHNOLOGY. (Not offered in 1973.) *Advanced studies for specialists in woodworking. Opportunities for individual research and problem-solving in various areas with particular emphasis on construction. Prerequisite:* Advanced standing in woods area.

436-181C. METALWORKING TECHNOLOGY. *Technical information and fundamental operations in machine shop. Exploratory experiences in welding, sheet metal and foundry. Safe use and maintenance of hand and machine tools.*
Two hours per day 8:30 — 10:40 a.m. MR. McCURDY

436-281C. METALWORKING TECHNOLOGY. *Further study in the metals field including forming, joining, heat treatment and finishing of metals. Prerequisite:* 436-181C or equivalent standing.
Two hours per day 8:30 — 10:40 a.m. MR. McCURDY

436-381C. METALWORKING TECHNOLOGY. (Not offered in 1973.) *The methods of teaching metalworking technology as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the successful teaching of metalworking. Prerequisites:* Metalworking Technology 181C and 281C or proven competency in metalworking.

436-481C. METALWORKING TECHNOLOGY. (Not offered in 1973.) *A study of metrology: language of measurement, measuring systems, graduated scales, micrometers, verniers, history of standards, use of gauge blocks, comparison measuring, calibration of measuring instruments.*

436-182C. TECHNICAL DRAWING. (Not offered in 1973.) *A study of drafting as a language of industry. Use of instruments and materials. Standards. Lettering, symbols, and conventions. Practice in orthographic projection and pictorial representations. Sections, developments, blueprint reading, sketching and problem-solving.*

436-282C. TECHNICAL DRAWING. (Not offered in 1973.) *A further study in the fundamentals of drafting including auxiliary views, sections, assembly/detail and introduction to architectural drawing. Prerequisite:* 436-182C or equivalent standing.

436-382C. TECHNICAL DRAWING. (Not offered in 1973.) *The methods of teaching technical drawing as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the successful teaching of technical drawing. Prerequisites:* 436-182C and 282C or proven competency in technical drawing.

436-482C. TECHNICAL DRAWING. (Not offered in 1973.) *An advanced course in drafting. Specific problems associated with the following areas: descriptive geometry, cams and gears, structural, electrical and electronic design, topographic drawing and new approaches in the field.*

436-183C. POWER TECHNOLOGY. *This course is to serve as an introduction to energy sources, prime movers, transmissions and controls and their application to propulsion.*
Two hours per day 8:30 — 10:40 a.m. MR. LEES

436-283C. AUTOMOTIVE TECHNOLOGY. (Not offered in 1973.) *A study of modern motor vehicle designs and principles of operation including electrical fuels, running gear, drive lines and engines in order to gain a better appreciation of the changing trends in the automotive industry.*

436-383C. AUTOMOTIVE TECHNOLOGY. (Not offered in 1973.) *The methods of teaching automotive technology as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the successful teaching of automotive technology.*

436-483C. AUTOMOTIVE TECHNOLOGY. (Not offered in 1973.) *Advanced studies in automotive technology.*

436-284C. DESIGN TECHNOLOGY. (Not offered in 1973.) *A survey of design, including basic principles, techniques and methods and their application as an integral part of the problem-solving activities necessary to a technological education.*

436-185C. ELECTRICITY/ELECTRONICS TECHNOLOGY. (Not offered in 1973.) *A study of the fundamentals of electricity and electronics.*

436-285C. ELECTRICAL TECHNOLOGY. (Not offered in 1973.) *Further study in the field of electricity.*

436-385C. ELECTRICITY/ELECTRONICS TECHNOLOGY. (Not offered in 1973.) *The methods of teaching electricity/electronics technology as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the successful teaching of electricity/electronics technology. Prerequisites* 436-185C and 285C or proven competency in electricity/electronics.

436-485C. ELECTRONICS TECHNOLOGY. (Not offered in 1973.) *Advanced studies in the field of electronics.*

436-186C. GRAPHICS TECHNOLOGY. *Introduction to graphic arts industries and technology. Designing, composing, reproducing and assembling printed materials utilizing commercial printing and duplicating techniques. Emphasis on letterpress, silk-screen and direct-image offset reproduction. Individual and group activities.*
Two hours per day 1:50 — 4:00 p.m. MR. KAGY

436-386C. GRAPHICS TECHNOLOGY. *The methods of teaching Graphic Arts technology as correlated with the general principles of education. A course emphasizing the demonstration and use of tools and equipment related to the teaching of Graphic Arts. Prerequisites:* Graphic Arts 436-186C and 286C or proven competency in graphic arts.
Two hours per day 12:45 — 2:50 p.m. MR. KAGY

436-290C. TYPEWRITING. (Not offered in 1973.) *An intensive skill course designed to develop speed and accuracy. The fundamentals and techniques are stressed. Instruction is given in letter styles, addressing envelopes, tabulation, preparing of manuscripts and the care of the typewriter. Speed range to be achieved 25-35 w.p.m.*

436-390C. TYPEWRITING. (Not offered in 1973.) *The methods of teaching typewriting as correlated with the general principles of education. A course emphasizing the demonstration of the principles of skill development and measurement and grading.*

436-490C. TYPEWRITING. (Not offered in 1973.) *An advanced course in skill development and the practical application of the skill. Production of office style problems will be stressed. Speed range to be achieved 35-50 w.p.m.*

436-291C. BUSINESS MACHINES. (Not offered in 1973.) *An introductory course designed to give basic instruction in the use of ten-key adding machines and printing calculators, key driven calculators, rotary calculators, posting machines, full-keyboard adding machines, transcribing machines and duplicators.*

436-391C. BUSINESS MACHINES. *The methods of teaching business machines as correlated with the general principles of education. Classroom organization, rotation plans, testing and evaluation will also be included.*
One hour per day 8:30 — 9:30 a.m. MR. KALUZA

436-192C. ACCOUNTING. *An elementary course in bookkeeping/accounting with emphasis on keeping records for a service enterprise. Single entry and double entry systems will be examined. Financial statements and cost sheets will be included.*
Two hours per day 1:50 — 4:30 p.m. T. B. A.

436-392C. ACCOUNTING. (Not offered in 1973.) *The methods of teaching accounting as correlated with the general principles of education. A course emphasizing the demonstration of methods of solving teaching problems encountered over the entire bookkeeping cycle. Prerequisite:* Proven competency in bookkeeping/accounting.

436-293C. DATA PROCESSING. (Not offered in 1973.) *An introductory course designed to familiarize students with the development of data processing, manual and mechanical methods of handling data, handling information by means of conventional business machines and computer, concepts of programming and the ways of using a computer in data processing.*

436-393C. DATA PROCESSING. (Not offered in 1973.) *The methods of teaching data processing as correlated with the general principles of education. A course emphasizing the demonstration and use of the equipment related to the successful teaching of data processing. Prerequisite:* 436-293C or proven competency in data processing.

436-493C. DATA PROCESSING. (Not offered in 1973.) *A study of data processing and unit record equipment together with practical work on systems flow charts, program flow charts, operating available machines and visits to a data centre.*

436-294C. BUSINESS MATHEMATICS. (Not offered in 1973.) *A study of the fundamentals of arithmetic as applied to business calculations including payroll, profit and loss, discounts, merchandise inventory, interest, loans, instalment selling, notes and drafts, taxes, insurance depreciation and exchange.*

436-394C. BUSINESS MATHEMATICS. (Not offered in 1973.) *The methods of teaching business mathematics as correlated with the general principles of education. The integration of business arithmetic with bookkeeping and business machines will be considered.*

436-494C. BUSINESS MATHEMATICS. (Not offered in 1973.) *A study of the application of mathematical principles and formulae to the solving of commercial and financial calculations.*

436-395C. OFFICE PRACTICE. (Not offered in 1973.) *The methods of teaching office practice as correlated with the general principles of education. The simulated office, cooperative work experience programs, case studies and the battery plan of organization will be studied.*

436-296C. SHORTHAND. (Not offered in 1973.) *A basic theory course in Gregg shorthand for those who have not studied the system before or for those who want to review the theory of Gregg shorthand Diamond Jubilee series.*

436-396C. SHORTHAND. (Not offered in 1973.) *The methods of teaching shorthand as correlated with the general principles of education. The functional and traditional methods will be discussed. Prerequisite:* Proven competency in shorthand.

436-496C. SHORTHAND. (Not offered in 1973.) *A review of basic theory combined with development of speed and training in transcription.*

436-297C. INTRODUCTION TO QUEBEC LAW. *An introduction to the legal principles that govern the citizen's life. Emphasis will be given to acts of civil status, labour legislation, consumer protection legislation, different types of contracts and the highway code.*
Two hours per day 1:50 — 4:00 p.m. T. B. A.

436-370C. BUSINESS ADMINISTRATION. *A study of the approaches to teaching subjects in the field of general economic education, including: economics, economic geography, law, administration. Case studies, panel discussions, games, simulation, programmed instruction will be considered in relation to the above mentioned subjects.*
One hour per day 12:45 — 1:45 p.m. PROFESSOR WADDELL

436-371C. DISTRIBUTIVE EDUCATION. (Not offered in 1973.) *A study of the approaches which can be used to teach subjects in the field of distributive education, including retailing, sales and publicity.*

3.7.14 GRADUATE DEGREES IN EDUCATION

Eligibility

During the Summer Session 1973 (July 3 to August 10) Graduate courses in Education are available ONLY to students who have been ACCEPTED either for a master's program in Education or as a Partial Student for a graduate course in Education. SEE APPLICATION DEADLINES. A Doctoral course in Education will be offered from May 16 to June 27.

Application Deadlines

MARCH 1 for Counsellor Education and Educational Administration Applicants.

APRIL 1 for Applicants for all other programs.

Applications and all supporting documents must be submitted to the Director of Graduate Studies in Education PRIOR TO THE DEADLINES NOTED ABOVE.

Application forms and further information may be obtained from:

L. B. Birch
Macdonald Professor of Education
Director of Graduate Studies in Education
McGill Faculty of Education
3700 McTavish Street
Montreal 112, Quebec

Partial Students

Students wishing to take COURSES at the graduate level in Education, but NOT to work towards a degree in the McGill Faculty of Education, may be CONSIDERED if they are in one of the three following categories.

1. Registered as a graduate student in another Faculty of McGill
2. Registered as a graduate student in a recognised University
3. Meet the entrance requirements for the degree and program in which the courses they wish to take are offered.

Interested applicants should write to L. B. Birch, the Director of Graduate Studies in Education, asking for further details on registering as a *Partial Student* at the master's level in the Faculty of Education.

Course Registration

Students are not permitted to take more than 2 full courses, or the equivalent of 2 full courses during a Summer Session.

Students whose *applications* have been duly accepted and are registered with Graduate Faculty for a graduate degree in Education, or as a Partial Student, should complete the GRADUATE SUMMER SESSION COURSE REGISTRATION FORM and RETURN IT BY *June 1 to the Director of their program with their fees attached.* Cheques should be made payable to McGill University and may be postdated to June 15. (Canadian funds please.)

Course Registration forms will not be acknowledged. The cancelled cheque will serve as a receipt.

Fees

Students taking graduate courses in Education and Students in the M.Ed. Teaching Subjects degrees pay the following fees.

Full courses $150.00 Half courses $75.00

Room and Board — consult the General Information section of this booklet

Parking — consult the General Information section of this booklet

Students taking graduate courses do NOT pay a summer Session registration fee NOR a deposit fee, NOR Lab fees. However, a cheque to cover the full amount of their course fees, and room and board fees if required, *must be attached to their* GRADUATE SUMMER COURSE REGISTRATION FORM.

Parking fees are to be paid on July 3. Do NOT submit them with your course fees please.

July 3

Students should (1) attend their first lecture.

(2) report to the office of their Program Director unless advised by their Program Director to report elsewhere.

(3) complete the final steps of their Summer Session registration which will be given to students by their Program Director (such as Library and Parking registration, ID card validation and possibly additional forms).

N.B.: Students who have attended McGill previously should bring their old ID cards with them.

Class rooms have not yet been allocated. If possible a flyer will be added to this booklet at the time of mailing, otherwise timetable with the room allocations will be posted by the elevators on each floor of the Education Building on July 3.

Degrees

The Department of Educational Administration	R. Lavery, Chairman
M.A. Educational Administration	R. Lavery, Prog. Dir.
M.Ed. Education Administration	R. Lavery, Prog. Dir.
The Department of Counsellor Education	J. Harris, Chairman
M.A. Counsellor Education	J. Harris, Prog. Dir.
M.Ed. Counsellor Education	J. Harris, Prog. Dir.
D.Ed. Counsellor Education	J. Harris, Prog. Dir.
The Department of Social Foundations of Education	J. K. Jobling, Chairman
M.A. Comparative Education	J. K. Jobling, Prog. Dir.
M.A. History of Education	J. K. Jobling, Prog. Dir.
M.A. Philosophy of Education	J. K. Jobling, Prog. Dir.

The Department of Educational Psychology and Sociology	H. Stutt, Chairman
M.A. Educational Psychology	W. Floch, Prog. Dir.
M.Ed. Special Education	H. Stutt, Prog. Dir.
The Department of Education in English	J. M. O'Hara, Chairman
M.Ed. Teaching of Reading	F. Greene, Prog. Dir.
The Department of Physical Education	R. E. Wilkinson, Chairman
M.A. Physical Education	J. Chomay, Prog. Dir.
The Department of Education in Mathematics and Science	H. Lead, Chairman
*M.Ed. Teaching Chemistry	W. Searles, Prog. Dir.
The Department of Education in the Social Sciences	D. Smith, Chairman
*M.Ed. Teaching Geography	E. Winter, Prog. Dir.
*M.Ed. Teaching History	D. Smith, Prog. Dir.
The Department of Education in Second Languages	M. Buteau, Chairman
*M.Ed. Teaching French as a Second Language	M. Buteau, Prog. Dir.
*M.Ed. Teaching Subject Degrees.	

3.7.14.1 COURSE DESCRIPTIONS

Educational Administration Programs

411-612C. PRINCIPLES OF EDUCATIONAL ADMINISTRATION. *This introductory course deals with the following topics: administration as a field of study, organizations, administrative behaviour, personnel administration, communications.*

411-622C. CASE STUDIES IN EDUCATIONAL ADMINISTRATION. *In this practicum the students will relate theory to the practice of school administration and supervision. Case studies will be presented to the group and, in addition, students will prepare studies based on their experiences. Students who are not practising administrators will be assigned to local schools where they will observe and assist administrators.*

411-630C. ADMINISTRATION OF EDUCATION IN QUEBEC. (Half Course.) *Consideration of the system of education in Quebec. The focus will be, first, on the basic legal framework of education in Quebec and the principal legal documents, and second, on the educational system in interaction with other social systems and with society as a whole.* PROFESSOR LAVERY

411-631C. ADMINISTRATION OF EDUCATION IN CANADA. *This course is intended to provide an overview of the structures of education, federally and provincially. Organization, legislation, and provincial commission reports are studied. Comparisons and contrasts between provincial educational programs are considered, with particular emphasis on education in the Province of Quebec.*

411-632C. SCHOOL FINANCE AND THE ECONOMICS OF EDUCATION. *This is a foundation course in revenue income for education in Canada in general and in the Province of Quebec specifically, as it relates to the ongoing process of budget and school management.*

411-635C. FISCAL ACCOUNTABILITY FOR THE SCHOOLS. (Half Course.) *Consideration of the schools' responsibility to the public in maintaining quality education within the limitations of accountability and organizational framework. Budgeting and evaluation of pupil progress will be studied as the measures of the schools' fulfilment of responsibility.*

411-642C. DEVELOPMENT AND ADMINISTRATION OF THE SCHOOL CURRICULUM. *This course deals with the development of the school curriculum at various age levels and in different settings with the organization of the school and the classroom to implement curricular plans. A study will be made of a variety of organizational schemes and of their development and implementation.*

411-645C. PRACTICUM IN THE SUPERVISION OF INSTRUCTION. (Half Course.) *Investigation of past and current theory and research dealing with supervision. Leadership and evaluation as roles of supervision will be analyzed in the school setting, with emphasis placed on supervision as the improvement of instruction and learning. Practical experience will include supervision of student teaching.*
PROFESSOR ISHERWOOD

411-661C. POLITICS OF EDUCATIONAL DECISION MAKING. (Half Course.) *A study of the nature of political and social constraints within which school systems operate at the local, provincial and federal levels. The contributions of such basic social sciences as political science, political sociology and social psychology will be considered.* PROFESSOR LAVERY

411-672C. THE PRINCIPAL AND OTHER SCHOOL ADMINISTRATORS. *This seminar course will deal with problems of personnel in administration, staff selection and utilization, supervision of instruction, professional development of staff, and staff evaluation. Various roles in school administration will be defined but emphasis will be placed on the elementary and secondary school principal. Prerequisite:* 411-612C. PROFESSOR ISHERWOOD

Counsellor Education Program

412-602C. PHILOSOPHY OF GUIDANCE. (Half Course.) *Philosophical foundations of guidance; history, growth, and recent trends of the guidance movement. Orientation to the field in respect to the functions, scope, organization, and administration of counselling services.* PROFESSOR LEARD
PROFESSOR ADKINS

412-603C. THEORIES OF PERSONALITY. (Half Course.) *Study and comparison of contemporary theories of personality. Emphasis upon theories having significance for counselling and assessment principles. Recent research in personality theory.*
MR. KLINEFELTER

412-604C. DYNAMICS OF GROUP WORK. (Half Course.) *Study of group organization, with opportunity to develop skills in group leadership. Interpretation of group interaction and typical roles played by members in groups.* PROFESSOR DUMONT
PROFESSOR TALLEY
T.B.A.

412-605C. INTRODUCTION TO THEORIES IN COUNSELLING. (Half Course.) *Correlation and interpretation of counselling data and the study of individual cases. Emphasis on the process in counselling, the counselling relationship, and counselling techniques.* PROFESSOR QUILY

412-611C. INDIVIDUAL TESTING. (Half Course.) *This course is intended to make the student familiar with the individual tests in common use and to give him some degree of proficiency in their application. Special emphasis will be placed on the Binet and Wechsler scales. There will be opportunities for diagnostic testing under supervision.*
PROFESSOR L. HEMMER
PROFESSOR LEARD

412-620C. ADVANCED CHILD PSYCHOLOGY. (Half Course.) *Study of the growing person from birth to pre-adolescence with emphasis on the background and methods as well as research on the principles of child development, disturbances in child development, various areas of development, and characteristics of different age levels.* PROFESSOR QUILY

412-621C/641C. PSYCHOLOGICAL TESTING IN THE ELEMENTARY SCHOOL/PSYCHOLOGICAL TESTING. *Group testing in the elementary school, including readiness, reading, diagnostic, intelligence, interest, aptitude, and other tests. Theory and application of group tests appropriate for adolescents and adults. Specific instruments; intelligence, aptitude, interest and personality, analyzed in terms of basic concepts, reliability, validity, and practical utilization.* PROFESSOR ADKINS

412-622C. TRENDS IN ELEMENTARY SCHOOL COUNSELLING. (Half Course.) *Social, psychological, educational factors in vocational development of elementary school children. Implications of the elementary curriculum for career planning and decision making. Functions, relationships, organization, and administration of guidance in elementary education.* PROFESSOR QUILY

412-624C/644C. PRACTICUM IN ELEMENTARY AND SECONDARY SCHOOL COUNSELLING. *Practices in counselling. Adapting to counselling sessions person to person, educational, occupational, and social relationships. Practice with individual cases.* PROFESSOR STEPHEN
PROFESSOR HARRIS
PROFESSOR HUM
T.B.A.

412-640C. ADOLESCENT DEVELOPMENT. (Half Course.) *Normal development of adolescents through young adulthood. Problems and concerns of adolescence which occur with physical, social and personal developments, in the context of family and school adjustment.* PROFESSOR DUMONT

412-642C/662C. INFORMATION SERVICES IN THE SECONDARY SCHOOL/INFORMATION SERVICES IN STUDENT PERSONNEL WORK (Half Course.) *Procedures and systems of utilizing and communicating social, educational, and occupational information and materials. Structure of occupations; theories of vocational development.* PROFESSOR J. HEMMER

412-663C. ORGANIZATION AND ADMINISTRATION OF SCHOOL PERSONNEL SERVICES. (Half Course.) *The functions, relationships, organization, and administration of guidance services in the secondary school and student personnel services.* T. B. A.

412-664C. PRACTICUM IN STUDENT PERSONNEL COUNSELLING. See course description for 412-624C/644C. in the Elementary and Secondary School Counselling Major. PROFESSOR MAROUN

412-720C. SEMINAR: CAREER DEVELOPMENT THEORY, PHILOSOPHY AND ORGANIZATION OF EDUCATIONAL PERSONNEL SERVICES. (Full Course.) *Contributions of contemporary career theories to the understanding of the processes and the determinants of career choice and adjustment; life stages and career patterns in personal and vocational development; study of selected problems, designs and outcomes of research in career development.*
Analysis of the inter-related functions of all types of specialized student personnel workers with particular reference to their role in the total educational program, such as: admission practices, social systems, provision for advisement and counselling, student activities and self-government, administration of financial aid,

faculty-student relations, and the principles governing the scope of such services and adapting them to educational institutions of various sizes and levels.
May 16 — June 27 8:00 — 10:00 a.m. daily T. B. A.

Social Foundations of Education Programs

413-617C. HISTORICAL FOUNDATIONS OF CONTEMPORARY EDUCATION. *A study of contemporary issues in education against an historical background. Some of the questions treated in depth will be the changing relations of church and state in education; the problems of mass education; the evolving concept of the university; the impact of the "second industrial revolution" on the school.*
PROFESSOR LOZOVSKY

413-641C. COMPARATIVE STUDY OF EDUCATION IN DEVELOPING NATIONS. *An analysis of education in selected Asian, African and Latin-American nations with special emphasis on the role of education in nation building.* PROFESSOR LIPKIN

413-657C. LEADING EDUCATIONAL THINKERS. *A study in depth of the ideas of prominent educational thinkers. Selection will be made from among such writers as Plato, Aquinas, Rousseau, Kant, Maritain, Dewey, Whitehead, Russell and McLuhan.*

Educational Psychology Program

414-610C. EDUCATIONAL MEASUREMENT. (Half Course.) *Statistical measurements in education; graphs, charts, frequency distributions, central tendencies, dispersion, correlation, and sampling errors.*

N.B. *Prerequisite* to 414-602D. THE USES OF STATISTICS IN EDUCATIONAL PROCEDURES. These courses may not be taken concurrently.
PROFESSOR EDWARDS
PROFESSOR BIRCH

414-615C. STUDIES IN EDUCATIONAL PSYCHOLOGY: CHILD DEVELOPMENT AND PERSONALITY. *An analysis of the theoretical and research literature in child and adolescent development with particular attention to theories of personality. Applications to teaching and other aspects of education.* PROFESSOR McKAY

Special Education Program

414-642C and 414-643C. EDUCATION OF EXCEPTIONAL CHILDREN. (Half Course.) *Two related and sequential half courses. Introduction to programs and problems of educating handicapped or gifted children.* PROFESSOR STUTT

414-644C. LEARNING PROBLEMS OF EXCEPTIONAL CHILDREN. *Learning process; relationship of various handicapping conditions to difficulties in learning; developmental and corrective programs.* PROFESSOR FLOCH

414-645C. DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS. (Half Course.) *Principles and procedures in the education of pupil growth and achievement and in the diagnosis of the causes of poor achievement. Emphasis will be given to the use and interpretation of tests to be given by the class teacher. Reference will be made to the use by the teacher of tests given outside the classroom by guidance counsellors or psychologists.*
PROFESSOR EDWARDS
PROFESSOR BIRCH

414-646C. PRACTICUM: DIAGNOSIS AND ASSESSMENT OF LEARNING PROBLEMS. (Half Course.) *Practice in the administration and interpretation of individual and group tests; use of other-than-teacher test results; collection and use of other pertinent data.*

414-653C. INDIVIDUALIZED CURRICULA AND SPECIAL TEACHING METHODOLOGY. (Half Course.) *Methodology and curricula for pupils of different types of exceptionality and at different stages of development; materials, activities, records, grading.*
MRS. KIFT

414-654C. PRACTICUM: INDIVIDUALIZED CURRICULA AND SPECIAL TEACHING METHODOLOGY. (Half Course.) *An opportunity will be given to develop individual teaching programs for selected exceptional children. Practice will be given in the use of specialized teaching techniques.*

†414-656C. CLINIC: REMEDIATION OF SELECTED LEARNING DIFFICULTIES. *Participation as a special education teacher in an interdisciplinary team; planning and carrying out of remedial programs for individual pupils; working with parents of children with learning difficulties.* PROFESSOR RABINOVITCH

†414-658C. SEMINAR: REMEDIATION OF SELECTED LEARNING DIFFICULTIES. *Interpretation of observable data and of information obtained from cumulative records; preparation and evaluation of individual and group programs of both a short and long range nature; planning developmental and remedial programs for the clinic, the regular class, and the special class.*

†At present courses 414-656C. and 414-658C. include participation as a junior staff member in the Learning Centre under the direction of Dr. M. S. Rabinovitch of the Department of Psychology of McGill.

Teaching of Reading Program

427-666C and 427-667C. DIAGNOSIS AND TREATMENT OF READING DISABILITY. (Two related and sequential full courses which cannot be taken separately; *Prerequisite:* permission of instructor.) *Causes, diagnosis and treatment of reading disability including neurological, physiological, psychological and social factors; use of diagnostic instruments, construction of informal diagnostic measures; observation of diagnosis and treatment in schools, clinics and hospitals; supervised individual case studies including diagnosis and treatment.*
PROFESSOR GREENE AND STAFF
(This course will be held at Guy Drummond School, 1475 Lajoie, Montreal)

Teaching Chemistry Program

180-201C. MODERN INORGANIC CHEMISTRY I. (3 credits; *Prerequisites:* E10B and E20A or equivalent courses.) *The course deals with the chemistry of the main group elements and their role in our everyday lives.*
July 3 — August 10
9 a.m. — 10 a.m. daily PROFESSOR BUTLER

180-311C. INTRODUCTION TO NUCLEAR CHEMISTRY. (3 credits; *Prerequisites:* 180-E10B and 180-E20A or equivalent courses.) *The basic concepts of nuclear chemistry will be described mainly in a qualitative way. Such topics as forces within nuclei, theories of nuclear structure, radioactive decay, nuclear reactions and fission, particle accelerators and reactors, radiocarbon dating, and tracer technique will be treated.*
July 3 — July 20
10:30 a.m. — 12:30 p.m. daily PROFESSOR HOGAN

180-392C. INTEGRATED INORGANIC/ORGANIC LABORATORY. (3 credits; *Prerequisite:* 180-352 or equivalent; consult instructor.) *Application of Spectroscopy, preparation aspects of chemistry; organometallic compounds.*
July 3 — August 10
Lab: 1:30 p.m. — 5:30 p.m. Monday, Wednesday, and Friday
PROFESSOR CHAN
PROFESSOR HARROD

Teaching Geography Program

183-204C. INTRODUCTION TO GEOGRAPHICAL ANALYSIS. (6 credits.) *The application of statistical and cartographic techniques to the description, analysis and presentation of spatially distributed data.* No prerequisite.
Times to be arranged T. B. A.

183-404C. CONTEMPORARY GEOGRAPHY. (6 credits.) *An analysis of the main branches of modern geography with emphasis on theoretical and methodological developments. Prerequisites:* Introductory university courses in physical and human geography.
Times to be arranged T. B. A.

Teaching History Program

101-690C. BRITISH NORTH AMERICA, 1840-1867. (Graduate full course.) *A study of the political, constitutional, social, economic and cultural development of British North America. Special attention will be given to relations between the French and the English and to the development of responsible government and of regionalism in the British colonies of North America.* (Not open to M.A. students in History.)
July 3 — August 10
1:30 p.m. — 3:30 p.m. daily T. B. A.

3,7.14.2

GRADUATE COURSES IN EDUCATION
SUMMER SCHOOL 1973 TIMETABLE

COURSES: 2 hours per day
5 days per week
Mon. to Friday

TERM: Full (Jul. 3 — Aug. 10)
1st (Jul. 3 — Jul. 20)
2nd (Jul. 23 — Aug. 10)

COURSE No.	SECT.	COURSE TITLE	TERM	TIME
Educational Administration Programs				
411-612C.	1	Principles of Educ. Administration	Full	8.00
411-622C.	1	Case Studies in Educ. Administration	Full	10:30
411-630C.	1	Administration of Educ. in Quebec	1st	8:00
411-631C.	1	Administration of Educ. in Canada	Full	10:30
411-632C.	1	Sch. Finance & the Economics of Educ.	Full	10:30
411-635C.	1	Fiscal Accountability for Schools	2nd	8:00
411-642C.	1	Develop. & Admin. of the Sch. Curr.	Full	10:30
411-645C.	1	Practicum in the Supervision of Instr.	1st	10:30
411-661C.	1	Politics of Educ. Decision Making	1st	10:30
411-672C.	1	The Principal & Other School Admins.	Full	8:00
Counsellor Education Program				
412-602C.	1	Philisophy of Guidance	1st	10:30
412-602C.	2	Philosophy of Guidance	1st	1:30
412-603C.	1	Theories of Personality	2nd	10:30
412-603C.	2	Theories of Personality	1st	10:30
412-604C.	1	Dynamics of Group Work	1st	8:00
412-604C.	2	Dynamics of Group Work	1st	1:30
412-604C.	3	Dynamics of Group Work	2nd	8:00
412-604C.	4	Dynamics of Group Work	2nd	4:00
412-605C.	1	Introduction to Theories in Couns.	2nd	8:00
412-611C.	1	Individual Testing	2nd	8:00
412-611C.	2	Individual Testing	2nd	1:30
412-611C.	3	Individual Testing	2nd	4:00

412-611C.	4	Individual Testing	2nd	10:30
412-620C.	1	Advanced Child Psychology	1st	10:30
412-640C.	1	Adolescent Development	1st	10:30
412-621C. 412-641C.	1	Psych. Testing in the Elem. School Psych. Testing (Adolescents & Adults)	2nd	10:30
412-621C. 412-641C.	2	Psych. Testing in the Elem. School Psych. Testing (Adolescents & Adults)	2nd	1:30
412-621C. 412-641C.	3	Psych. Testing in the Elem. School Psych. Testing (Adolescents & Adults)	2nd	4:00
412-622C.	1	Trends in Elem. School Counselling	1st	10:30
412-642C. 412-662C.	1	Information Services in Sec. School Info. Serv. in Student Pers. Work	1st	10:30
412-642C. 412-662C.	2	Information Services in Sec. School Info. Serv. in Student Pers. Work	1st	4:00
412-663C.	1	Organiz. & Admin. of Sch. Pers. Serv.	2nd	10:30
412-624C. 412-644C.	1	Practicum in Elem. Sch. Couns. Practicum in Sec. Sch. Couns.	Full	10:30
412-624C. 412-644C.	2	Practicum in Elem. Sch. Couns. Practicum in Sec. Sch. Couns.	Full	1:30
412-644C. 412-664C.	3	Practicum in Sec. Sch. Couns. Practicum in Student Pers. Couns.	Full	10:30
412-644C. 412-664C.	4	Practicum in Sec. Sch. Couns. Practicum in Student Pers. Couns.	Full	10:30
412-720C.	1	Seminar: Career Development Theory, Philosophy and Organization of Educational Personnel Services	Full	8:00 (May 16 — June 27)

Social Foundations of Education Programs

413-617C.	1	Historical Founds. of Contemp. Educ.	Full	10:30
413-641C.	1	Comp. Study of Ed. in Devel. Nations.	Full	8:00
413-657C.	1	Leading Educational Thinkers	Full	1:30

Educational Psychology Program

414-610C.	1	Educational Measurement	1st	8:00
414-610C.	2	Educational Measurement	1st	10:30
414-610C.	3	Educational Measurement	1st	10:30
414-615C.	1	Stud. in Ed. Psych: Chld Dev. & Pers.	Full	10:30

Special Education Program

414-642C.	1	Education of Except. Chld. Part I	1st	8:00
414-643C.	1	Education of Except. Chld. Part II	2nd	8:00
414-644C.	1	Learning Probs. of Except. Chld.	Full	8:00
414-645C.	1	Diag. & Assess. of Learn. Probs.	2nd	8:00
414-645C.	2	Diag. & Assess. of Learn. Probs.	2nd	10:30
414-645C.	3	Diag. & Assess. of Learn. Probs.	2nd	10:30
414-646C.	1	Pract: Diag. & Assess. Learn. Probs.	2nd	8:00
414-653C.	1	Indiv. Curr. & Sp. Teach. Method.	1st	10:30
414-654C.	1	Pract. Indiv. Curr. & Sp. Teach. Method.	2nd	10:30
414-656C.	1	Clinic: Remed. of Select. Learn. Diffs.	Full	As individually scheduled
414-658C.	1	Seminar: Rem. of Sel. Learn. Diffs.	Full	As individually scheduled

Teaching of Reading Program

(The following two courses will be held at Guy Drummond School, 1475 Lajoie, Montreal)

427-666C.	1	Diag. & Treatment of Read. Dis. Part I	Full	From 9 to 4 daily
427-667C.	1	Diag. & Treatment of Read. Dis. Part II	Full	From 9 to 4 daily

Physical Education Program

The Department of Physical Education will not offer courses this Summer. Students in the M.A. Physical Education program should consult their Program Director, Professor J. Chomay before selecting their Optional Courses.

3.7.14.3 MASTER OF EDUCATION TEACHING SUBJECTS SUMMER SCHOOL 1973 TIMETABLE

During the Summer Session these courses are offered by the appropriate Departments in the Faculties of Arts and Science. M.Ed. Students taking these courses must obtain approval from **both** the Academic Department **and** from the Faculty of Education Program Director (signatures will be required).

COURSE No.	SECT.	COURSE TITLE	CREDITS	DATES	TIMES
Teaching Chemistry Program					
M.Ed. Students may take a maximum of two, 3-Credit, courses and they will NOT be required to pay any lab fees.					
180-201C.	1	Modern Inorganic Chemistry I.	3	Jul. 3—Aug. 10	9:00—10:00 daily
180-311C.	1	Introduction to Nuclear Chemistry	3	Jul. 3—Jul. 24	10:30—12:30 daily
180-392C.	1	Integrated Inorganic/Organic Lab.	3	Jul. 3—Aug. 10	1:30— 5:30 M.W.F.
Teaching French as a Second Language					
Information concerning the courses and registration procedures for this program may be found in the Ecole Française d'Eté booklet. Please contact the McGill French Summer School Office.					
Teaching Geography Program					
183-204C.	1	Introduction to Geographical Anal.	6	TBA	TBA
183-404C.	1	Contemporary Geography	6	TBA	TBA
Teaching History Program					
101-690C.	1	British North America, 1840-1867	F	Jul. 3—Aug. 10	1:30— 3:30 daily

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***NOTE:** Numbers refer to section, *not* page.

PRINTED IN CANADA

McGill University

CENTRE FOR CONTINUING EDUCATION

1973-74

Strathcona Hall
772 Sherbrooke St. West

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*Mailing address is:
McGill University, P.O. Box 6070,
Montreal 101, Quebec, Canada

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1 ADMINISTRATIVE OFFICERS

ROBERT E. BELL, C.C., B.A., M.A. (U.B.C.), LL.D. (Tor.), D.Sc. (U.N.B.), Ph.D., F.R.S., F.R.S.C. *Principal and Vice-Chancellor*

EIGIL PEDERSEN, B.A. (S.G.W.), Ed.D. (Harv.), M.A. *Vice-Principal (Academic)*

STANLEY B. FROST, B.D., M.Th. (London), Dr.Phil. (Marburg), D.D. (Vic., Tor.), D.Litt. (Mem.) *Vice-Principal (Administration and Professional Faculties)*

MAURICE McGREGOR, M.B.B.Ch., M.D. (Rand), F.R.C.P. (Lond.), F.R.C.P.(C) *Vice-Principal (Health Care)*

DALE C. THOMSON, D.F.C., B.A., Ph.D. *Vice-Principal (Planning)*

ALLAN C. McCOLL, D.F.C., B.Com., C.A. *Director of Finance*

J. ALISTAIR DUFF, B.A., M.A., C.A. *Director, Centre for Continuing Education*

GORDON W. E.McELROY, B.A., M.A. *Associate Director (Education)*

PAMELA D. STEWART, B.A., M.A. *Associate Director (Languages)*

EDWARD BURNETT, B.A., M.Sc. *Associate Director (Management — Undergraduate and Certificate Programs)*

WILLARD H. ELLIS, B.A., M.B.A. *Associate Director (Management — Graduate and Professional Development Programs)*

2 INTRODUCTION

The McGill Centre for Continuing Education is organized to provide university level courses for adults. Classes are held in the evening throughout the year. There were more than 20,000 class hours in 1972-73. Some 16,000 registrations were assigned to 600 classes instructed by 300 lecturers — about half of whom were full-time members of Faculty.

The emphasis in the Centre is upon part time study programs leading to Diplomas and Certificates, although regular day students are enrolled in some courses for degree credit as are part time students who have been accepted by Faculty for credit towards a degree.

3 GENERAL INFORMATION

There are six sections in the Centre:

EDUCATION
ENGINEERING
GENERAL COURSES
LANGUAGES
MANAGEMENT — GRADUATE AND PROFESSIONAL DEVELOPMENT PROGRAMS
MANAGEMENT — UNDERGRADUATE AND CERTIFICATE PROGRAMS

This calendar includes all courses that commence in August, September or October and many that commence in January. Supplementary leaflets are available in December describing all courses commencing in January and other leaflets, available on request in April, list courses in May, June and July.

The Centre is located in Strathcona Hall, 772 Sherbrooke St. W., at the corner of McGill College Avenue. The Information Office (Room 101), in Strathcona Hall, is open for general information throughout the year from Monday to Friday 9:00 a.m. to 5:00 p.m. and during term time from Monday to Thursday until 9:00 p.m.

3.1 REGISTRATION

Registration must be made in person during the official registration periods listed at the beginning of each Section. In no case will telephone applications be accepted or commitments made by telephone for acceptance into a course. A student is registered and accepted into a course only when he has received a student card of admission.

NOTE: Students are not permitted to attend lectures until they have registered and paid their fees.

The University reserves the right to restrict registration in any class, to make substitutions or additions to the published list of instructors and to cancel any class for which an insufficient number of registrations has been received. If a class is cancelled, fees in full will be refunded.

3.2 REFUNDS

To obtain a refund, the Student Card of Admission, as well as any material handed out in class, must reach the Centre for Continuing Education before the second lecture in the course is given; this can be done by mail or in person. A refund, less $5.00 per course, will be mailed within six weeks to students who have paid course fees by cheque. In limited enrolment courses of twelve or less than twelve lectures, the refund will be pro rata, less the regular charge of $5.00. **Allowances cannot be made for a change of personal plans including transfer from Montreal or for additional commitments which a student may accept after arranging his course schedule.**

3.3 TRANSFERS

Students may transfer from one class to another AFTER the first lecture and BEFORE the date of the third class in both courses, provided that registration for the new course is still open. A charge of $5.00 will be made for a transfer from one course to another or from one section of a course to another section. A transfer cannot be made by speaking to the instructor or telephoning the Centre; the student must bring or mail his Student Card of Admission to the Centre in Strathcona Hall.

3.4 WITHDRAWALS

A student is held responsible for all courses in which he registers, unless he officially withdraws. Ceasing to attend a class or notifying the lecturer does not constitute official withdrawal, nor can telephone calls be accepted as notification of withdrawal. All registrations will automatically appear on a student's transcript unless he officially withdraws by notifying the Centre in writing prior to the completion of 50% of the course.

3.5 LIMITED CLASS

The size of a class will be limited in courses where the progress of the student is dependent upon his participation and upon the individual attention he receives from the lecturer. It will also be limited in courses where equipment determines the number of students who can be accommodated. In all such cases, enrolment is on a "first come, first served" basis.

3.6 CANCELLATION OF LECTURES

Lectures are cancelled by the Centre only when a lecturer is ill. In such cases lectures will be made up at a time convenient to the students.

3.7 FEES

The fee as indicated for each course is payable in advance, at time of registration.

3.7.1 RECEIPTS

Official receipts for income tax purposes will be mailed in February of each year to all students. Receipts will be mailed to the address on record and students are urged to inform the Centre in writing of any change in address.

3.8 EXAMINATIONS

An examination, optional to students, will be available in the majority of courses. Examinations may be written in English or French. Students will be notified by mail of their results. No examination results will be given by telephone; they will be posted in Strathcona Hall three to four weeks after the date of the final examination.

Students who are seeking credit for a Diploma or Certificate who are unable to write the final examination for reasons of health must submit a medical certificate to the Centre. Those who are out of town on business must submit a letter from their firm.

3.9 GRADING SYSTEM

The Centre uses the grading system common to the university. Unless otherwise noted in the description of an individual course, grading will be as follows:

a) For Certificate and other courses that do not require a university degree for admission:

Final marks for each course will be classified into five grades: A (80-100%); B (65-79%); C (55-64%); D (45-54%); and F (fail) less than 45%. The grade of D is a "passing" grade, but a grade of C or higher is required in all courses in a continuation sequence, except the final one. Also, no student may register for any course for which he has not passed all the prerequisite courses with a grade of C or better, except by written permission of the department concerned.

b) For Graduate Diploma and other courses that normally require a university degree for admission:

Final marks for each course will be classified into four grades: A (80-100%); B (65-79%); C (55-64%); F (fail) below 55%. A mark of A or B is a pass at the Graduate level; a mark of C is a pass at the Undergraduate level but does not count as a credit towards a Graduate Diploma.

3.10 CONVOCATION

A Spring Convocation will be held for students who have successfully completed the following programs of study through the Centre for Continuing Education:

Diploma in Translation; Certificates of Proficiency in English, French, German, Italian, Russian, Spanish, Translation; McGill Certificates in Management; and Diploma of Licentiate in Accountancy.

3.11 TRANSCRIPTS

Official transcripts may be obtained upon written request and payment of $2.00 for two transcripts and 25¢ for each additional transcript provided the order is given at one time.

3.12 NOTICES

Students should consult the Continuing Education notice board in the building in which their classes are held.

3.13 TEXTBOOKS

Where possible textbooks have been indicated in course descriptions. These are not final and students should check the notice board located in the Centre's offices before classes commence.

All required textbooks and some of the suggested reference texts may be purchased at the McGill University Bookstore, located in the Bronfman Building, 1001 Sherbrooke St. West.

The following store hours for the convenience of the evening students:

WEEK OF AUGUST 27	8:30 a.m. to 8:15 p.m.
SEPTEMBER 4, 5, 6	8:30 a.m. to 8:15 p.m.
SEPTEMBER 10 to 21	8:30 a.m. to 5:00 p.m.
WEEK OF SEPTEMBER 24	8:30 a.m. to 8:15 p.m.

For those students from out of town the bookstore will open Saturday mornings 9:00 a.m. — 12:00 noon September 8, 15, 22 and 29.

3.14 CHANGES OF ADDRESS

Students should inform the Centre in writing of any change of address after registration. The student's number and course number(s) must be indicated.

3.15 CLASSROOMS

Room numbers are not given in this book; they will be found on the Continuing Education notice boards in all buildings. On the night of the first lecture, students should consult the notice board of the building in which their course is to be held.

A master list will be posted in the Centre's offices.

3.16 SMOKING

Smoking is strictly forbidden in all classrooms.

Students may smoke in the corridors and are asked to use the containers provided.

3.17 HOLIDAYS

3.17.1 **LABOUR DAY AND THANKSGIVING**

No classes will be held on Monday, September 3 or Monday, October 8, and the Centre's offices will be closed.

3.17.2 **CHRISTMAS**

The Centre's offices will be closed Monday, December 24, 1973 through Tuesday, January 1, 1974.

3.17.3 **EASTER**

Monday, April 15, 1974 ALL EVENING CLASSES MEET, however the Centre's offices will be closed.

3.18 UNIVERSITY CENTRE

The University Centre is located at 3480 McTavish Street. Cafeteria and Grillroom services are available to Continuing Education students up to 7 p.m.

3.19 PARKING

Parking facilities are limited. Students may park in the garage of the McIntyre Medical Sciences building (entrance on Peel Street) on presentation of their student card and payment of 50 cents for the evening. Those wishing to park on the Campus may do so after 5:00 p.m. on payment of $1.00 for the evening.

It is the responsibility of each student to read, understand, and abide by the rules and procedures printed in this booklet.

McGILL CENTRE FOR CONTINUING EDUCATION

Telephone 392-5244 (9 a.m. to 5 p.m.)

4 EDUCATION

Associate Director — Professor G. W. E. McELROY

Telephone: 392-4757

4.1 GENERAL

The Faculty of Education offers a Bachelor of Education program for part-time students. Applicants must hold a teaching certificate valid in Quebec or its equivalent, and have completed a minimum of 13 years of study.

The program requires a total of 90 credit hours, 45 in academic courses and 45 in education courses. The academic course requirements are as follows:

12 credit hours in one teaching subject
9 credit hours in a second teaching subject
3 credit hours in a third teaching subject
3 credit hours in a fourth teaching subject
3 credit hours in a fifth teaching subject
15 credit hours — free electives

TEACHERS WHO REGISTER FOR COURSES AND WISH TO HAVE THEM CONSIDERED AS CREDIT FOR PURPOSES OF *SCOLARITÉ* ARE ADVISED TO APPLY FOR ADMISSION TO THE BACHELOR OF EDUCATION PROGRAM.

For application forms apply to:
Admissions Office
McGill University
P.O. Box 6070
Montreal 101, Quebec Phone: 392-5196

Inquiries regarding course selection should be addressed to:
Professor G. W. E. McElroy
B.Ed. Co-ordinator (Part-time Students)
McGill University
Faculty of Education
3700 McTavish
Montreal 112, Quebec Phone: 392-8828

4.1.1 REGISTRATION

1. ALL STUDENTS MUST REGISTER IN PERSON *ONLY*.
2. Dates to Register:

SEPTEMBER 4, 5 & 6	Monday — Thursday	9:00 a.m. — 2:30 p.m. 5:00 p.m. — 7:00 p.m.
SEPTEMBER 7	Friday	9:00 a.m. — 2:30 p.m.
SEPTEMBER 10, 11, 12 & 13	Monday — Thursday	5:00 p.m. — 7:00 p.m. only

3. Registration for second term courses will be on
JANUARY 7, 8 9 & 10 5:00 p.m. — 7.00 p.m. only

4.1.2 GENERAL INFORMATION

For information regarding, transcripts, refunds, withdrawals, etc., please see SECTION 3 of the calendar.

THE CENTRE FOR CONTINUING EDUCATION, IN CO-OPERATION WITH THE FACULTY OF EDUCATION, OFFERS THE FOLLOWING COURSES IN 1973-74

4.2 NURSERY SCHOOL EDUCATION PROGRAM

4.2.1 CURRICULUM

**Program open only to those students who have previously completed Year I and Year II of the program. Other students who wish to participate must obtain special permission from the Associate Director, Professor G. W. E. McElroy.

THIRD YEAR

Program Planning and Physical Environment of the Nursery School
Developmental Testing and Child Study
Education in Quebec
History and Philosophy of Nursery Education

Fees are $250.00 per year.

4.2.2 STUDENT TEACHING

Third year students will be required to spend a period of either four weeks of half days or two weeks of full days in a nursery school setting. This is an essential requirement.

4.2.3 COURSES OF INSTRUCTION

THIRD YEAR COURSES

6A2-376. DEVELOPMENTAL TESTING AND CHILD STUDY. Mrs. Jane Hugesson. 30 lectures of 2 hours on Tuesdays at 6 p.m. beginning September 10. Education Building, 3700 McTavish St.

Based on Gesell's Developmental Scale and IIIg and Ames School Readiness Test, students will be required to test 15-20 children. One of these tests may be included in the detailed child study which is also a requirement of the course.

6B2-326. PROGRAM PLANNING AND PHYSICAL ENVIRONMENT OF THE NURSERY SCHOOL. Ms. Susan Garfinkle. 15 lectures of 2 hours on Wednesdays, at 7 p.m., beginning September 12. Education Building, 3700 McTavish St.

The main theme in this course will be the importance of planning a program based upon and emphasizing the needs of this age group. All prior course work will be incorporated into the planning of an effective nursery school program. Additional topics for discussion will include:

1. The selection of equipment and materials for both indoor and outdoor use.
2. Timetabling and its importance in the program.
3. The development of verbal communication.
4. A.V. and the role it can play in the learning of the child.

6C2-351. EDUCATION IN QUEBEC. Dr. R. Lavery. 3 lectures of 2 hours on Thursdays at 7 p.m. beginning January 10, 1974. Education Building, 3700 McTavish St.

A survey of Quebec education system with reference to responsibilities of personnel therein.

6C2-310. HISTORY AND PHILOSOPHY OF NURSERY EDUCATION. T.B.A. 8 lectures of 2 hours on Thursdays beginning February 7, 1974. Education Building, 3700 McTavish St.

Contemporary theories and developments surrounding early childhood education will be considered from the point of view of their historical antecedents, philosophical goals and social determinants.

4.3 CREDIT COURSES*
(are equivalent to 3 credit hours unless otherwise stated.)
Credit courses geared to the professional updating of teachers.

4.3.1 ACADEMIC COURSES
Art Education
4.3.1.1

6B4-200 (652-204A). STUDIO ART—DRAWING. Professor J. Watling. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning October 9. Education Building, 3700 McTavish St. Class Limited.
Fee: $60.00.
Development of sound draughtsmanship; exploration of various forms of graphic expression; various media.

6C4-201 (652-205B). STUDIO-ART-PAINTING II. Professor J. Watling. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning January 8. Education Building, 3700 McTavish St. Class Limited.
Fee: $60.00.
Prerequisite: **6B4-200 (652-204A).**
Investigation of media, tools, techniques primarily through studies of natural forms, the human figure.

6B4-304 (652-304A). PAINTING III. Professor Clifford Papke. 10 lectures of 3 hours on Wednesdays at 7 p.m., beginning October 10. Education Building, 3700 McTavish St. Class Limited.
Fee: $60.00.
Continuation of prerequisite **6C4-201 (652-205B).**

6C4-305 (652-305B). PAINTING IV. Professor Clifford Papke. 10 lectures of 3 hours on Wednesdays at 7 p.m. beginning January 9. Education Building, 3700 McTavish St. Class Limited.
Fee: $60.00.
Continuation of prerequisite **6B4-304 (652-304A).**

6B4-201 (652-296A). BASIC DESIGN. Professor B. E. White. 10 lectures of 3 hours on Thursdays at 7 p.m., beginning October 11. Education Building, 3700 McTavish St. Class Limited.
Fee: $60.00.
Exploration of the basic elements of visual art through two dimensional composition and three dimensional constructions. Investigation of materials and tools and the processes of manipulating and relating materials.

6C4-202 (652-297B). DESIGN II. Professor B. E. White. 10 lectures of 3 hours on Thursdays at 7 p.m., beginning January 10. Education Building, 3700 McTavish St. Class limited.
Fee: $60.00.
Same as **6B4-202 (652-297A).**

6B4-302 (652-206A). GRAPHICS I. Professor B. E. White. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning October 9. Education Building, 3700 McTavish St. Class limited.
Fee: $85.00.
An introduction to some graphic media; monoprints, calligraphy, linocuts, woodcuts, etc. A practical study of the various elementary processes. Exhibition of student's work required at the end of course.

6C4-302 (652-206B). GRAPHICS I. Professor B. E. White. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning January 8. Education Building, 3700 McTavish St., Class Limited. *Fee:* $85.00.
Same as course offered in October. **6B4-302 (652-206A).**

GRAPHICS II. Professor B. E. White. 10 lectures of 3 hours on Tuesdays at 7 p.m. Education Building, 3700 McTavish St. Class limited.
Fee: $85.00.
Prerequisite: **6B4-302 (652-206A) or 6C4-302 (652-206B).** Study in further graphic media techniques. These may include line engraving, dry point, relief etching, intaglio, and related processes. Exhibition of student's work required at the end of the course.
6B4-406 (652-207A). Beginning Tuesdays, October 9.
6C4-406 (652-207B). Beginning Tuesdays, January 8.

GRAPHICS III. Professor B. E. White. 10 lectures of 3 hours on Wednesdays at 7 p.m. Education Building, 3700 McTavish St. Class limited.
Fee: $85.00.
Prerequisite: **6B4-406 (652-207A).** Continuation in studies of graphic techniques. These may include variations on previous learned techniques, silk screen, viscocity printing, multiple plate work, etc. Exhibition at the end of the course required.
6B4-407 (652-394A). Beginning Wednesdays, October 10.
6C4-407 (652-394B). Beginning Wednesdays, January 9.

GRAPHICS IV. Professor B. E. White. 10 lectures of 3 hours on Wednesdays at 7:00 p.m. Education Building, 3700 McTavish St. Class limited. *Fee:* $85.00.

A more advanced study of various graphic media. The student will be expected to be familiar with the standard processes studied in the preceding courses. At this stage the student should begin to concentrate on developing a personal style, incorporating the necessary techniques to make his personal statement.

6B4-395 (652-395A). Beginning Wednesdays, October 10.
6C4-395 (652-395B). Beginning Wednesdays, January 9.

GRAPHICS V. Professor B. E. White. 10 lectures of 3 hours on Wednesdays at 7:00 p.m. Education Building, 3700 McTavish St. Class limited. *Fee:* $85.00.

An extension of skills learned in Graphics I-IV. Techniques explored may be engraving, silk screen, relief, intaglio, calligraphy, dry point, combination printing. The student will be expected to explore those areas which most closely correspond to his particular graphics style. An exhibition of student work is required at the end of the course.

6B4-495 (652-495A). Beginning Wednesdays, October 10.
6C4-495 (652-495B). Beginning Wednesdays, January 9.

INTRODUCTION TO CERAMICS. Professor L. Studham. 10 lectures of 3 hours on Tuesdays at 7 p.m. Education Building, 3700 McTavish St. Class limited to 12. *Fee:* $85.00.

A consciousness of the medium is developed through basic ceramic processes; hand building experiences and introduction to wheel thrown constructions.

6B4-303 (652-208A). Beginning Tuesdays, October 9.
6C4-303 (652-208B). Beginning Tuesdays, January 8.

CERAMICS II. Professor L. Studham. 10 lectures of 3 hours on Thursdays at 7 p.m. Education Building, 3700 McTavish St. Class limited to 12. *Fee:* $85.00.

Prerequisite: **6B4-303 (352-208A or B) or 6C4-303.** A continuation and concentration of wheel projects. Elementary clay and glaze preparations.

6B4-408 (652-209A). Beginning Thursdays, October 11.
6C4-408 (652-209B). Beginning Thursdays, January 10.

CERAMICS III. Professor L. Studham. 10 lectures of 3 hours on Thursdays at 7 p.m. Education Building, 3700 McTavish St. Room 615. Class limited to 12. *Fee:* $85.00.

Prerequisite: **6B4-408, or 6C4-408 (652-209 A or B).** Chemistry of glazes, formation of slips, engobes and glaze. Firing and maintenance of kiln and equipment.

6B4-409 (652-300A). Beginning Thursdays, October 11.
6C4-409 (652-300B). Beginning Thursdays, January 10.

CERAMICS IV. Professor Lyn Studham. 10 lectures of 3 hours on Thursdays at 7:00 p.m. Education Building, 3700 McTavish St. *Fee:* $85.00. Class limited to 12.

Chemistry of glazes. Emphasis placed on lab work. Firing and maintenance of kiln and equipment.

6B4-309 (652-309A.) Beginning Thursdays, October 11.
6C4-309 (652-309B). Beginning Thursdays, January 10.

6C4-214 (652-241B). BASIC ART MEDIA. Prof. J. Watling. 10 lectures of 3 hours on Thursdays at 7:00 p.m. beginning January 10, 1974. Education Building, 3700 McTavish St. *Fee:* $60.00.

A course to acquaint the student with basic art media in two and three dimensions and to provide for involvement and in-depth experience in the creative process. This course is designed for the elementary school teacher.

4.3.1.2 Education in Mathematics and the Sciences

MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS. 15 lectures of 2 hours on Tuesdays at 7 p.m. beginning September 11. Education Building, 3700 McTavish St. *Fee:* $60.00.

A course specially designed for elementary school teachers to provide the basic foundations, insight and understanding of the Quebec modern elementary mathematics program. Recommended for all elementary school teachers.

6B4-271 (654-241A). Dr. H. Lead.

6C4-241 (654-241B). BACKGROUND SCIENCE FOR ELEMENTARY SCHOOL TEACHERS. Professor P. Francoeur. 15 lectures of 2 hours on Tuesdays at 7:00 p.m. beginning January 8, 1974. Education Building, 3700 McTavish St. *Fee:* $60.00.

This course presents science as a means of explaining and exploring our environment. A study of the fundamental concepts common to most elementary programs.

6C4-271. PERSPECTIVES ON ELEMENTARY MATHEMATICS EDUCATION (not offered in 1973-74, to be offered September 1974).

4.3.1.3 Education in Second Languages

6B4-301 (650-301A). LINGUISTICS APPLIED TO SECOND LANGUAGE TEACHING. Dr. M. Buteau. 15 lectures of 2 hours on Tuesdays at 7 p.m., beginning September 11. Education Building, 3700 McTavish St. *Fee:* $60.00.

An introduction to general and contrastive linguistics. A study of the areas of interference in the learning of a second language: phonology, lexis and grammar, with application to teaching materials.

6A4-558 (650-558D). TEACHING ENGLISH AS A SECOND LANGUAGE, SECONDARY. Mr. G. Charbonneau. 30 lectures of 2 hours on Thursdays at 7 p.m., beginning September 13. Education Building, 3700 McTavish St. *Fee:* $120.00. (6 cr.).

This course will be concerned with the following topics: A general body of knowledge common to all second language teaching. A further study of the English Language in a "second" language perspective based on applied linguistics. Examination of teaching techniques and media.

6A4-544 (650-544D). DIDACTIQUE DU FRANÇAIS, LANGUE SECONDE, ELEMENTARY. Prof. J. White. 30 lectures of 2 hours on Thursdays at 7 p.m., beginning September 13. Education Building, 3700 McTavish St. *Fee:* $120.00. (6 cr.).

Principles of second language teaching: linguistics, psychological, socio-cultural. Examination of teaching techniques and materials. Lesson planning and practice.

6C4-347 (650-347B). TEACHING ENGLISH AS A SECOND LANGUAGE ELEMENTARY. T.B.A. 15 lectures of 2 hours on Tuesdays at 7 p.m., beginning January 8. Education Building, 3700 McTavish St. *Fee:* $60.00.

This course will be concerned with the following topics: A general body of knowledge common to all second language teaching. A further study of the English Language in a "second" language perspective based on applied linguistics. Examination of teaching techniques and media.

6C4-340 (650-340B). CULTURAL CONTENT. Prof. J. Lobelle, 15 lectures of 2 hours on Tuesdays at 7:00 p.m., beginning January 8. Education Building, 3700 McTavish St. *Fee:* $60.00.

Study of the Quebec socio-cultural scene. Preparation of class material relative to Quebec.

4.3.1.4 Education in Catholic Studies

6B4-290 (657-290A). GUIDE TO READING THE BIBLE. Professor J. Hilton, 15 lectures of 2 hours on Thursdays at 7:00 p.m., beginning September 13. Education Building, 3700 McTavish St. *Fee:* $60.00.

A basic introduction to the Judaeo-Christian Scriptures with the emphasis upon reading and existential interpretation.

6C4-207 (657-207B). WHO IS CHRIST? Dr. T. A. Francoeur. 15 lectures of 2 hours on Tuesdays at 7:00 p.m., beginning January 8. Education Building, 3700 McTavish St. *Fee:* $60.00.

An open search for the authentic person of Christ — from Scriptures and present-day manifestations.

6C4-208 (657-208B). IN SEARCH OF MAN. Sister E. McIlwaine. 15 lectures of 2 hours on Thursdays at 6:00 p.m., beginning January 10, 1974. Education Building, 3700 McTavish St. *Fee:* $60.00.

His place in the world; his role as a knower; his dynamic responses to his environment; his ultimate nature as a human person.

4.3.1.5 Education in English

6B4-594 (656-594A). CREATIVE DRAMATICS FOR THE CLASSROOM. Prof. P. Hearsey. 15 lectures of 2 hours on Wednesdays at 6:00 p.m., beginning September 12. Education Building, 3700 McTavish St., Room 129. *Fee:* $60.00.

A course in Creative Drama and in the use of Improvisional Techniques in the pursuit of child development. Theories of creative drama will be considered, but the emphasis will be on practical activities and exercise.

6C4-595 (656-595B). IMPROVISATION AND THEATRE ARTS FOR THE CLASSROOM. Prof. P. Hearsey. 15 lectures of 2 hours on Wednesdays at 6:00 p.m., beginning January 9, 1974. Education Building, 3700 McTavish St., Room 129. *Fee:* $60.00.

A course beyond the introduction level to provide further perspectives on the teaching of drama and the technique of improvisation. Instruction and practice in play production will be included.

CANADIAN LITERATURE. The development of prose literature and poetry in Canada from the beginnings to the present time.

6B4-228 (656-228A). Professor A. Godfrey, beginning Tuesdays at 6:00 p.m. September 11.

6C4-229 (656-229B). Professor A. Godfrey, beginning Tuesdays at 6:00 p.m. January 8.

6B4-345 (656-345). LITERATURE FOR YOUNG ADULTS. Mrs. Marion B. Knechtel. 10 lectures of 3 hours on Thursdays at 6:00 p.m., beginning September 13. Education Building, 3700 McTavish St. *Fee:* $60.00.

A study of the strategies of developing reading habits and tastes among high school students. The selection of works in a variety of genres suitable to different abilities and interests will be discussed.

6C4-344 (656-344). CHILDREN'S LITERATURE. Professor E. Dolan. 10 lectures of 3 hours on Thursdays at 6:00 p.m., beginning January 10. Education Building, 3700 McTavish St. *Fee:* $60.00.

Selection and use of literature suitable for children in the elementary school.

4.3.1.6 Education in Music

6C4-429 (659-201B). BASIC MUSICIANSHIP. Miss Lorraine Thibeault. 15 lectures of 2 hours on Tuesdays at 4:00 p.m., beginning January 8. Education Building, 3700 McTavish St. *Fee:* $60.00. Class limited to 20.

Introduction to the elements of music theory through techniques of aural training, sight singing, keyboard, and written applications to be presented as the classroom teacher should teach such elements of music to elementary school students. "Lab work at the keyboard." *Text: Basic Resources for Learning Music,* Knuth and Woodsworth.

4.3.1.7 Educational Psychology & Sociology**

6B4-377 (658-377A). ADOLESCENCE & THE PROCESS OF EDUCATION. Prof. S. Pupo. 15 lectures of 2 hours on Tuesdays at 7:00 p.m., beginning September 11. Education Building, 3700 McTavish St. *Fee:* $60.00.

Development of personality and social behaviour in adolescence. Problems relating to self-concept, academic achievement, relationships with others, and development of values in a changing culture. Some attention to current criticisms of the school as an agency involved in adolescent development.

6C4-492 (658-492B). PSYCHOLOGY AND INSTRUCTIONAL DESIGN. Prof. Glen Cartwright. 15 lectures of 2 hours on Wednesdays at 5:00 p.m., beginning January 9. Education Building, 3700 McTavish St. *Fee:* $60.00.

This course draws on the fields of learning theory, developmental psychology, measurement, and curriculum development as they can be used to focus on the task of instructional design.

**The above two courses may be considered as either an academic or education credit if so desired.

4.3.2 EDUCATION COURSES

4.3.2.1 Art Education

EDUCATION 441 CURRICULUM AND INSTRUCTION IN ART. Professor J. Watling. 10 lectures of 3 hours on Thursdays at 7 p.m. Education Building, 3700 McTavish St. Class limited. *Fee:* $60.00.

A practical and theoretical course of particular interest to the classroom teacher. Designed to expose the student to the philosophy of education through art and to reinforce classroom performance with experience in a variety of media.

6B4-401 (652-332A). Beginning Thursday, October 11.

4.3.2.2 Education in the Social Sciences

6B4-332 (655-332A). LOCAL AND COMMUNITY STUDIES — LATER CHILDHOOD. Prof. J. Bradley. 10 lectures of 3 hours on Thursdays at 6:00 p.m., beginning September 13. Education Building, 3700 McTavish St. *Fee:* $60.00.

Objectives and structure of the Quebec elementary social science curriculum. Development of instructional skills and teaching strategies in environmental studies; systematic observation, interviewing, opinion polling, sample surveying and simple data analysis. Pupil evaluation.

6C4-333 (655-333B). COMPARATIVE SOCIAL STUDIES — LATER CHILDHOOD. Prof. J. Bradley. 10 lectures of 3 hours on Thursdays at 6 p.m., beginning January 17. Education Building, 3700 McTavish St. *Fee:* $60.00.

The creative development of instructional skills and learning strategies in using historical and geographical comparative case studies as means of deepening the elementary school child's understanding of the major human activities in his own social and economic environment.

6C4-414 (655-404B). VALUE ANALYSIS IN THE SOCIAL SCIENCES. Prof. Howard Riggs. 15 lectures of 2 hours on Tuesdays at 7:00 p.m., beginning January 8. Education Building, 3700 McTavish St. *Fee:* $60.00.

An examination of the objectives of value analysis, teaching strategies for value clarification and analysis and their application to the study of social issues and environmental problems.

6B4-403 (655-403). SIMULATION IN THE SOCIAL SCIENCES. Prof. M. Bain. 10 lectures of 3 hours on Wednesdays at 6:00 p.m., beginning September 12. Education Building, 3700 McTavish St. *Fee:* $60.00.

A critical analysis of selected simulations as strategies in the social sciences. Emphasis

on the elements of simulation, the process of decision-making, and affective learnings. The development of skills in creating with students, simulations for use in elementary and high school classes.

4.3.2.3 Education in Catholic Studies

6C4-419 (657-419B). CATECHETICAL THEMES. Dr. B. Lawlor. 15 lectures of 2 hours on Wednesdays at 7:00 p.m., beginning January 9, 1974. Education Building, 3700 McTavish St. *Fee:* $60.00.

An opportunity to explore the major catechetical themes covered in religion programs.

4.3.2.4 Education in English

6B4-223 (656-223). READING INSTRUCTION EARLY CHILDHOOD. Mrs. Jane Adams. 15 lectures of 2 hours on Wednesdays at 7:00 p.m., beginning September 12. Education Building, 3700 McTavish St. *Fee:* $60.00.

Methods and materials for the teaching of reading in the primary grades.

6C4-233 (656-233). READING INSTRUCTION LATER CHILDHOOD. Mrs. Christine Lucas. 15 lectures of 2 hours on Wednesdays at 7:00 p.m., beginning January 9, 1974. Education Building, 3700 McTavish St. *Fee:* $60.00.

Methods and materials for the teaching of reading in the upper elementary grades.

4.3.2.5 Educational Media

6B4-204 (651-204 A/B). INTRODUCTION TO EDUCATION MEDIA. Mrs. A. Pollard. 10 lectures of 3 hours on Wednesdays at 7 p.m., beginning October 10. Education Building, 3700 McTavish St., Room 132. *Fee:* $60.00.

A study of the application of educational media to the elementary and secondary school teaching and learning situation, including rationale and underlying principles, the sources, selection, production, effective utilization and evaluation of the media. Class limited.

6C4-204 (651-204 A/B). INTRODUCTION TO EDUCATIONAL MEDIA. Prof. R. Jones. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning January 8. Education Building, 3700 McTavish St., Room 132. *Fee:* $60.00.

A study of the application of educational media to the elementary and secondary school teaching and learning situation, including rationale and underlying principles, the sources, selection, production, effective utilization and evaluation of the media. Class limited.

6B4-205 (651-205 A/B). FILM PRODUCTION AND FILM CRITICISM. Prof. R. Jones. 10 lectures of 3 hours on Tuesdays at 7 p.m., beginning October 9. Education Building, 3700 McTavish St., Room 132. *Fee:* $85.00. Limited Class.

A study of the educational significance of various projected media: 16 mm films, 8 mm films, 35 mm slides, multi-media presentations. The utilization of such media, teacher or student production.

6C4-205 (651-205 A/B). FILM PRODUCTION AND FILM CRITICISM. Prof. R. Pollard. 10 lectures of 3 hours on Thursdays at 7 p.m., beginning January 10. Education Building, 3700 McTavish St., Room 132. *Fee:* $85.00. Class Limited.

A study of the educational significance of various projected media: 16 mm films, 8 mm films, 35 mm slides, multi-media presentations. The utilization of such media, teacher or student production.

6B4-306 (651-306A). EDUCATIONAL TELEVISION. Professor R. Pollard. 10 lectures of 3 hours on Thursdays at 7:00 p.m., beginning October 11. Education Building, 3700 McTavish St., Room 132. *Fee:* $85.00. Class limited.

This course will survey the development of ETV with particular reference to current topics including children's TV programs, cable and closed circuit ETV. Short TV productions will take place in class to encourage a critical analysis of the potential of portable TV equipment for local teacher and student production.

6B4-404 (651-404A). CONTEMPORARY DEVELOPMENTS IN EDUCATIONAL MEDIA. Professor R. Jones. 10 lectures of 3 hours on Thursdays at 7:00 p.m., beginning October 11. Education Building, 3700 McTavish St., Room 132. *Fee:* $85.00. Class limited.

An examination of current trends in educational media including a critical analysis of educational television, computer assisted instruction, systems analysis, programmed instruction, self-instructed packages, gaming and simulation, etc.

6C4-309 (651-309B). THE LIBRARY-RESOURCE CENTRE. Mrs. A. Pollard. 10 lectures of 3 hours on Wednesdays at 7:00 p.m., beginning January 9. Education Building, 3700 McTavish St., Room 132. *Fee:* $60.00.

The developing of a library-resource centre including such topics as administration, acquisitions processing, circulation routines, budgeting, and methods of integrating the library-resource centre into the school curriculum.

4.3.2.6

Education in Physical Education

6B4-521 (653-521A). MOVEMENT EDUCATION — EARLY CHILDHOOD. Mrs. C. Barnes and Professor J. Wall. Arthur Currie Gym, 475 Pine Avenue West. (Dates and times to be announced). *Fee* $60.00.

This course is designed to give classroom teachers an understanding of Physical Education teaching strategies and content appropriate for young children in Grades K-3. The course will focus upon Movement Education through manipulative, non-manipulative and expressive movement skills.

6B4-531 (653-531A). PHYSICAL EDUCATION — LATER CHILDHOOD. Prof. J. Chomay. Arthur Currie Gym, 475 Pine Avenue West. (Dates and times to be announced). *Fee:* $60.00.

The classroom teacher is introduced to teaching strategies appropriate to the upper elementary grades (4-7). This course will also provide the teacher with a wide range of movement and games experiences from which to develop a sound physical education program.

6C4-396 (653-496B). PHYSICAL EDUCATION FOR THE EXCEPTIONAL CHILD. Mr. G. Reid. Arthur Currie Gym, 475 Pine Avenue West. (Dates and times to be announced). *Fee:* $60.00.

This course will focus on identification, evaluation, and remediation techniques basic to the development of effective physical education programs for mentally educable children and children with specific learning disabilities. Progressive motor learning experiences related to body image, spatial relations, eye-hand coordination, and balance will be developed, applied and evaluated.

4.4 NON-CREDIT COURSES

6B0-029. WRITING IN THE SECONDARY SCHOOL. Mr. Brian Powell. 10 lectures of 2 hours on Thursdays at 8 p.m., beginning October 11. Education Building, 3700 McTavish St. *Fee:* $35.00.

Participatory development of practices and principles in the conduct of high school classes engaged in writing as an instrument of personal growth.

6B0-212. CLASS PIANO FOR CLASSROOM TEACHERS. Miss Lorraine Thibeault. 15 lectures of 1 hour on Tuesdays at 5:00 p.m., beginning September 11. Education Building, 3700 McTavish St. *Fee:* $40.00. Class limited to 18. *Text: Piano for Classroom Music,* 2nd ed., Robert Pace (Prentice Hall).

Keyboard experiences through group piano lessons utilizing the multiple key approach; transposition by ear; improvising simple chordal accompaniments for classroom singing, and sight reading.

6B0-211. UKULELE FOR BEGINNERS. Miss Lorraine Thibeault. 15 lectures of 1 hour on Tuesdays at 4:00 p.m., beginning September 11. Education Building, 3700 McTavish St. *Fee* $40.00. ($15.00 for materials).

Students need not have any previous experience in music. The price of materials for the course will come to approximately $15.00. The objectives of the course are to teach the basic skills of Ukulele playing (picking and strumming), to present ear training indirectly, to teach the basic concepts of theory, and to increase the enjoyment of music. Musical learning obtained may be transferred to the guitar at a later date.

6BO-101. SEMINAR IN ADVANCED COUNSELLING SUPERVISION. Prof. W. Talley. 10 lectures of 2½ hours on Tuesdays at 7:00 p.m., beginning September 11. Education Building, 3700 McTavish St. *Fee:* $65.00. (Limited to 12).

This course will consist of three levels:

a) Exposure to audio and video taped sessions of various theoretical approaches to counselling (Adlerian, Behavioural, Gestalt, Rogerian);

b) Live counselling and role-playing with immediate replay and discussion with the counsellor and client, with emphasis on Ivey and/or Carkhuff's microcounselling paradigm and core conditions and levels of communication; and

c) Playing and critiquing of the student's taped counselling sessions in particular theoretical frameworks.

4.5 OFF-CAMPUS COURSES

4.5.1 SPECIAL EDUCATION (EDUCATING THE INDIVIDUAL)

This program, offered at a number of off-campus centres, leads to a Diploma in Special Education.

Education of Exceptional Children
General Methods in Special Education
Organization of Special Education Programs
Introduction to Diagnosis and Assessment
Practicum in Diagnosis and Assessment of Learning Problems
Vocational Habilitation of Exceptional Children
Cognitive and Psychomotor Problems of Exceptional Children
Behavioural Problems of Exceptional Children
School-Home-Community Relations in Special Education
Psychology of Learning Problems
Materials in Special Education
Special Topics in the Education of Exceptional Children

For further information concerning these courses please write to:

Professor H. Stutt
Faculty of Education (Room 522)
3700 McTavish St.
Montreal 112, P.Q.

5 ENGINEERING COURSES

5.1 INTRODUCTION

5.1 INTRODUCTION

The 1973-74 Evening program in Engineering offers a variety of courses designed to up-date engineers. Many of the courses may be of interest to the qualified professional.

The first section lists courses of general interest which may appeal to both graduates and non-graduates. The second section lists courses in the Computer Science field.

5.1.1 REGISTRATION

REGISTRATION WILL BE IN PERSON ONLY at the Centre, 772 Sherbrooke Street West during the official registration periods listed below:

COURSES COMMENCING IN SEPTEMBER 1973

Day Registration

9:00 a.m. to 2:30 p.m., Monday to Friday inclusive, 4 to 21 September.

Evening Registration

5:00 p.m. to 7:00 p.m., Monday to Thursday inclusive, 4 to 20 September.

COURSES COMMENCING IN JANUARY 1974

Day Registration

9:00 a.m. to 2:30 p.m., Monday to Friday inclusive, 14 to 25 January, 1974.

Evening Registration

5:00 p.m. to 7:00 p.m., Monday to Thursday inclusive, 14 to 24 January, 1974.

A late registration fee of $5.00 per course will be charged after official registration has closed.

An evaluation process will be conducted in all courses. Students who do not wish to avail themselves of this opportunity are not obliged to do so.

ENGINEERING SECTION
392-4935
Mrs. Eva St-Pierre

5.2 GENERAL COURSES

7A5-001. MATERIAL MANAGEMENT I. (In cooperation with the International Material Management Society, Montreal Chapter.) Course Co-ordinator: Mr. A. H. Carlisle. 20 lectures of 2 hours. Tuesdays at 8 p.m., beginning September 25. McConnell Engineering Building, Room 210. *Fee:* $90.00.

Introduction: Characteristics and applications of Material Handling equipment; hand equipment, pallets and pallet systems, unit loads, powered industrial trucks, conveyors. Warehousing, including design and layout, material handling equipment, receiving, storing, shipping, stock location systems, order picking, space and inventory control, and public warehousing. This course will include discussions, films, passouts, assignments and plant visits.

7A5-002. INTRODUCTION TO INDUSTRIAL ENGINEERING. Mr. M. Tuchner. 20 lectures of 2 hours. Thursdays at 6 p.m., beginning September 27. McConnell Engineering Building, Room 210. *Fee:* $90.00. *Prerequisite:* High School Matriculation.

This course is designed to give an appreciation of industrial engineering activities in specific areas including the industrial engineer's problem; method study — Five Step Plan, critical examination, allied charting techniques; work measurement — time study, standard time data, work sampling; maintenance control — procedures, planning and scheduling, cost control and cost analysis; statistical quality control — variations and frequency distribution, control charts, statistical acceptance sampling, inventory control and production planning, office methods and measurement, critical path scheduling. *Text:* Maynard, *Industrial Engineering Handbook* (McGraw-Hill).

7A5-003. INDUSTRIAL INSTRUMENTATION. (In cooperation with the Instrument Society of America, Montreal Section.) Course Co-ordinator: Mr. W. Borusiewich. 25 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. McConnell Engineering Building, Room 210. *Fee:* $110.00. *Prerequisite:* High School Matriculation or equivalent.

This revised introductory course covers industrial process measurements and automatic process control. The first half of the course describes the principles of, and hardware for, taking pressure, level, temperature, flow and analytical measurements, while the second half describes transmission of signals, automatic control theory and applications, final control elements, and computer applications. Some previous experience in instrumentation would be an asset, but not essential.

7A5-004. AIR POLLUTION. 20 lectures of 2 hours. Thursdays at 7:30 p.m., beginning September 27. *Fee:* $90.00. *Prerequisite:* B.Sc., B.Eng. or equivalent by permission of instructor.

This general course in Air Pollution is designed for City and Municipal health personnel, plant engineers and managers, industrial personnel and others interested in the field. The following topics will be discussed: History of Air Pollution, sources, health effects, measurement and control methods, legal aspects, climatological and long-term effects, atmospheric chemistry and dispersion.

7A5-101. APPLICATION PROBLEMS IN HIGH VOLTAGE POWER ENGINEERNIG. Mr. B. J. Gevay. 20 lectures of 2 hours, Mondays at 6:00 p.m., beginning September 24. McConnell Engineering Building, Room 210. *Fee:* $90.00. *Prerequisite:* University degree or equivalent.

Subjects covered will include a brief review of synchronous machines, transformers, transmission lines, induction motors. Detailed treatment will be given to short circuit calculations and circuit breaker selections. Other subjects covered include the (thermal) overload characteristics of apparatus and unbalanced loads. Finally, a review will be provided on the application of analog and digital computers for power system planning.

5.3 COMPUTER SCIENCE

5.3.1 OPEN TO NON-GRADUATES AND GRADUATES

Registration in most of the following courses is limited and the course fee contains a laboratory fee for use of the computer and for keypunching services.

All courses involve considerable homework assignments and students should not normally take additional evening courses at the same time.

7B9-001. COBOL PROGRAMMING CONCEPTS. Mr. G. M. R. Dean. 12 lectures of 2 hours, plus laboratory. Wednesdays at 6 p.m., beginning September 26. Burnside Hall, Room 1B16. *Fee:* $80.00. Class limited.

7C9-001. Wednesdays at 6:00 p.m. beginning January 30.

The primary purpose of this course is to provide an understanding of computers and programming for those whose job function will bring them into contact with the business applications of computers.

This is a first course in programming concepts using COBOL language focusing on business applications. Topics include: basic computer concepts, COBOL language and facilities, flowcharting techniques, operating system and hardware facilities.

Problems will be assigned and run on an IBM/360 computer.

7B9-002. COMPUTER STRUCTURE AND ASSEMBLY LANGUAGE PROGRAMMING. Mr. A. Greenberg. 12 lectures of 2 hours plus one hour laboratory. Tuesdays at 6 p.m., beginning September 25. Burnside Hall, Room 1B16. *Fee:* $80.00. *Prerequisite:* A knowledge of Fortran or equivalent.

Computer structure, machine language, instruction execution, addressing techniques, and digital representation of data. Symbolic coding and assembly systems, program segmentation and linkage. *Text:* Frank D. Vickers, *Introduction to Machine and Assembly Language 360/370* (Holt Rinehart & Winston).

7B9-003. INTRODUCTORY FORTRAN. Prof. D. Burrage. 12 lectures of 2 hours plus one hour laboratory. Tuesdays at 6 p.m., beginning September 25. Burnside Hall, Room 1B17. *Fee:* $80.00. *Prerequisite:* High School Mathematics.

This is a first course in Computer Programming using the Fortran language. *Text:* G. Ratzer, *A Fortran course* (McGill Computing Centre).

7B9-004. COMPUTER APPLICATIONS IN FORTRAN. Mr. N. Paul. 12 lectures of 2 hours plus laboratory periods. Wednesdays at 6 p.m., beginning September 26. Burnside Hall, Room 1B17. *Fee:* $80.00. *Prerequisite:* A working knowledge of Fortran or a similar programming language.

An extension of the course Introductory Fortran this course emphasizes the use of computers in problem-solving. Topics covered include stored program computer concepts,

numerical and non-numerical computation, statistics and Monte-Carlo simulation. The use of a time-shared computer system is taught early in the course. Participants are expected to complete one major project during the term in addition to weekly programming problems.

7C9-005. COMPUTERS IN DATA PROCESSING. Mr. N. Paul. 12 lectures of 2 hours plus laboratory. Mondays at 6:00 p.m., beginning January 28. Burnside Hall. *Fee:* $80.00. Class limited. *Prerequisite:* A working knowledge of another high level programming language, for example FORTRAN.

A considerable proportion of this course will be taken in developing and applying basic Cobol principles. Other topics include job control language, data sets, sort/merge file processing, comparison with other languages.

Problems will be assigned and run on an IBM/360 computer.

5.3.2 GRADUATE LEVEL

7B9-201. COMPUTING METHODS I. 12 lectures of 2 hours, plus laboratory. Mondays at 6 p.m., beginning September 24. Burnside Hall, Room 1B16. *Fee:* $80.00. No registration after the first lecture. *Prerequisites:* A working knowledge of FORTRAN and of enginenering mathematics (including matrices and differential equations).

Roots of equations (single variable), matrix methods, systems of linear equations.

7C9-202. COMPUTING METHODS II. 12 lectures of 2 hours, plus laboratory. Mondays at 6 p.m., beginning January 28. Burnside Hall. *Fee:* $80.00. No registration after the first lecture.

An extension of Computing Methods I including the following topics: Systems of non-linear equations, numerical solution of ordinary and partial differential equations, linear programming, multiple regression, monte-carlo methods.

6 GENERAL COURSES

6.1 INTRODUCTION

Courses offered in this Section of the Calendar cover a wide range of topics and they are classified as follows:

University Lecture Series
Communication Arts
Human Behaviour
Canadian Studies
Occupational Preparation
Social Work
Bachelor of Nursing Program

6.1.1 REGISTRATION

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COURSES COMMENCING IN JANUARY 1974

Day Registration
9:00 a.m. to 2:30 p.m., Monday to Friday inclusive, 14 to 25 January, 1974.

Evening Registration
5:00 p.m. to 7:00 p.m., Monday to Thursday inclusive, 14 to 24 January, 1974.

A late registration fee of $5.00 per course will be charged after official registration has closed.

An evaluation process will be conducted in all courses. Students who do not wish to avail themselves of this opportunity are not obliged to do so.

GENERAL SECTION
392-4905
Mrs. Jane Hollander

6.2 UNIVERSITY LECTURE SERIES

5B0-101. THE ORIGINS OF THE SECOND WORLD WAR. Professor H. Noel Fieldhouse. 12 lectures of 1½ hours. Tuesdays at 8 p.m., beginning September 25. Stephen Leacock Building, Room 15. *Fee:* $35.00.

In this lecture and discussion series, Professor Fieldhouse will draw upon the enormous body of primary material available to him dealing with the origins of the Second World War. He brings tc his class a lifetime of scholarly historical research, much of which centres upon the two world wars.

6.3 COMMUNICATION ARTS

5B1-101. ART IN PERSPECTIVE. Dr. R. Bertos. 12 lectures of 2 hours. Wednesdays at 7:00 p.m., beginning September 26. *Fee:* $45.00.

The main stages in the development of visual arts since Antiquity are reviewed in this course through systematic interpretation of outstanding art monuments, with particular

emphasis placed on the art of the last century. Comparisons of works from different periods aim to a deeper understanding of the work of art in its dual function as a vehicle of individual expression and as a focal point of historical and cultural forces.

5B1-102. BASIC PRINCIPLES OF ART. Mr. P. Landsley. 12 classes of 3 hours. Mondays at 7 p.m., beginning September 24. Studio: Room W130, Arts Buliding. *Fee:* $70.00. Class limited.

This elementary class, which will work in various media, explores the nature of shape, line, texture, volume, colour, etc., the basic principles necessary to pictorial expression. Some of the projects will be of a design nature, some working from the imagination and some from things seen such as the model, etc.

Most materials will be provided but the student will provide others such as pens and various tools (scissors, glue, etc.) and colours.

5B1-103. ELEMENTARY DRAWING. Mr. P. Landsley. 12 classes of 3 hours. Tuesdays at 7 p.m., beginning September 25. Studio: Room W130, Arts Building. *Fee:* $70.00. Class limited.

5C1-104. Mondays at 7:00 p.m., beginning January 28.

This elementary drawing courses will explore fundamentals of graphic expression through various drawing media such as charcoal, pencil, pen and ink, conté crayon, working from models, memory and imaginative topics.

Most materials will be provided although students will be expected to provide some drawing media such as pens. Information on this will be given at the first class.

5B1-105. OIL PAINTING. Mr. P. Landsley. 12 classes of 3 hours. Wednesdays at 7 p.m., beginning September 26. Studio: Room W130, Arts Building. *Fee:* $70.00. Class limited.

5C1-106. Wednesdays at 7:00 p.m., beginning January 30.

An elementary class in oil painting. Emphasis will be on individual development through an involvement in pictorial composition and colour theory. Experience will be acquired in use of colour from painting from life, still life and imagination.

Most materials will be provided but the student will provide others such as brushes for painting. Information on this will be given at first class.

5C-107. INTERMEDIATE DRAWING. Mr. P. Landsley. 12 classes of 3 hours. Tuesdays at 7 p.m., beginning January 29. Studio: Room W130, Arts Building. *Fee:* $70.00. Class limited.

This course is open only to individuals who have taken a previous elementary drawing course. It will continue the exploration of fundamentals of graphic expresson through various drawing media such as charcoal, pencil, pen and ink, conté crayon, working from models, memory and imaginative topics.

Most materials will be provided although students will be expected to provide some drawing media such as pens.

INTERIOR DESIGN. Mr. André Dubois. 12 lectures of 2 hours and two industrial visits. Macdonald Engineering Building. *Fee:* $55.00. Classes limited.

5B1-108. Mondays at 6 p.m., beginning September 24.
5B1-109. Wednesdays at 6 p.m., beginning September 26.
5C1-110. Mondays at 6 p.m., beginning January 28.

This course is a practical approach to interior design through study-problems of the major points to be considered. In addition to audio-visual presentations of the principles of design, room planning, colour theory and lighting concepts, there will be a historical review of furniture styles leading to a study of the most up-to-date furniture.

Lectures and industrial visits will acquaint the student with materials, methods of decoration, principles of design and though this prepare him or her for a second series of 12 lectures of design exercises.

RESIDENTIAL INTERIOR DESIGN. Mr. Patrick Hadden. 2 series of 12 lectures of 2 hours. Macdonald Engineering Building. *Fee:* $55.00. each series. Class limited.

This course is intended for those who have taken an introductory course on Interior Design. It should be particularly valuable to men and women working as assistants, receptionists or salespeople in business related to interior design.

5B1-111. Part I. Tuesdays at 6 p.m., beginning September 25.

The following topics will be dealt with: Room Analysis; Thinking with a pencil; The Language of furniture arrangement; The Law of contrasts; Creative Budgeting.

5C1-211. Part II. Tuesdays at 6 p.m., beginning January 29.

The following topics will be dealt with: Enlightened lighting; The application of colour; Creating atmosphere; Psychology of interior design; Placing pictures and ornaments.

In each series students will work on self-selected design projects. Part of each session will be devoted to group discussion of these projects.

MODERN LITERATURE. Dr. Harriet Duer. Two series of 12 lectures of 1½ hours each. Stephen Leacock Building, Room 111. *Fee:* $45.00 each series.

5B1-112. *In Brief: Modern Short Stories.* Wednesdays at 8:00 p.m., beginning September 26.

A survey of short stories from Canada, Ireland, England, the United States and the

Continent. Writers to be studied will include: Hemingway, Joyce, Tolstoy, Melville, LeRoi Jones, Henry James and others. Selection of texts will be discussed at the first meeting. The course will be conducted using a mixture of lecture and class discussion.

5C1-113. *The Heart of the Matter: Speculations on the Nature of Man.* Wednesdays at 8:00 p.m., beginning January 30.

Using a selection of plays and novels, the course will examine some of the major cultural attitudes man has held about himself, his identity, his gods, his culture. Depending upon availability, texts may include: Marlowe, *Dr. Faustus,* Bolt, *A Man for all Seasons,* Cooper, *The Prairie,* Melville, *Typee* and *Billy Budd,* Greene, *The Heart of the Matter,* McCarthy, *Birds of America,* Borland, *When the Legends Die,* Ringuet, *Thirty Acres.* Selection of texts will be discussed at the first meeting. The course will be conducted using a mixture of lecture and discussion.

5B1-114. SCIENCE FICTION: UTOPIAS. Mrs. Sally T. Nelson. 12 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Building. *Fee:* $45.00.

The course will deal with works of S.F. (Science Fiction/Speculative Fantasy) which incorporate models for societies of the future. Depending on availability, authors may include Asimov, Herbert, Wyndham, Vonnegut, Henderson, Miller, Kuttner, McCaffrey, Heinlein, Bradbury, Clarke and various collections.

5C1-114. SCIENCE FICTION: FUTURE REALITIES. Mrs. Sally T. Nelson. 12 lectures of 2 hours. Tuesdays at 6 p.m., beginning January 29. Stephen Leacock Building. *Fee:* $45.00.

The course will deal with work of S.F. (Science Fiction/Speculative Fantasy) which incorporate realities, myths, and illusions commonly held by contemporary society as applied to the future. Titles chosen will depend on availability of books. For an idea of authors, see Science Fiction: Utopias.

NOTE — Students may register for this course without having registered for **5B1-114** or they may consider it as a continuation course.

5A1-115. INTRODUCTION TO DRAMA AND THEATRE. Professor John Ripley. 25 lectures of 2 hours each. Tuesdays at 6:00 p.m., beginning September 25. Stephen Leacock Bldg., Room 111. *Fee:* $90.00.

A study of the dramatic text and its realization in a theatre performance. Special attention would be paid to the following areas: (1) The play and the playwright; (2) The actor and the art of acting; (3) Design and stagecraft; (4) Directors and directing; and (5) the audience and dramatic criticism. About six plays would be studied in detail e.g. Oedipus Rex by Sophocles; Macbeth by Shakespeare; The Wild Duck by Ibsen; and Three Sisters by Chekhov. The other two plays might be productions staged locally during the course period. Students would be required to attend these plays as class projects. A few television programs and films might also be examined as adjuncts to theatre study. Format of the course would consist of lectures and discussion, some written work would also be required.

5A1-116. INTRODUCTION TO THE STUDY OF LANGUAGE. Professor D. W. Lightfoot. 25 lectures of 2 hours. Wednesdays at 7:00 p.m., beginning September 26. Stephen Leacock Building, Room 229. *Fee:* $90.00.

The first part of the course deals with language historically. Topics include the origin of human language and the ways that it can change across time and across space (dialects). We shall examine attested changes from various languages, the reconstruction of lost languages, changes currently in progress in English, constraints on possible changes (i.e. comparing those things which can and cannot change). Students will get a grounding in phonetics, so that we have a basis for discussing sound changes.

The second part of the course deals with language structurally. Under the assumption that language is rule-governed, we shall examine the phonological and syntactic (grammatical) systems of human language, seeing what kinds of formal processes are involved (attention will be paid to language universals). We shall then compare those formal properties to the properties of animal communication systems and pidgins, hoping to find out something about the nature of human language and hence of the human mind.

Other topics include: The application of linguistics to language teaching, the relationship between language and thought and the nature of scientific revolution (examining the nature of several revolutions, but principally Noam Chomsky's revolution in linguistics).

THEATRE, TELEVISION, FILM: DIRECTING AND PRODUCING. 2 series of 12 lectures of 2 hours each. Mondays at 8:00 p.m., beginning September 24. Stephen Leacock Bldg., Room 226. *Fee:* $45.00 each series.

5B1-117. PART I: How to direct and/or produce for today's theatre, including a comparative analysis of techniques used on stage, in motion pictures and television. This course offers a complete concept from the business aspects to the back-stage crews, to the front office, to the casting and final production. This course is designed to provide the theory for those who have some practical experience but lack knowledge of the basic fundamentals.

5C1-217. PART II. Mondays at 8:00 p.m., beginning January 28. A workshop course including field trips to the studios of three media. Students will be working closely with Canadian Marconi Broadcast Division (CFCF-TV) and with a major Montreal film production house and will gain knowledge in their studios.

5A1-118. EFFECTIVE TELEVISION COMMUNICATION. Mr. W. J. Karle. 25 sessions of 3 hours each. Tuesdays at 7 p.m., beginning September 25. Macdonald Chemistry Building. *Fee:* $185.00. Class limited to 24.

This course is designed for those who now have responsibility for some aspects of television communication in industrial, educational, medical, etc. settings. Others may be admitted to the class on recommendation of the Lecturer.

Class sessions introduce the student to the equipment, techniques and practice of television production. Students spend 60% of class time producing television programs and 40% on theory. They examine current television programming and are encouraged to develop different methods of television utilization. They are shown ways to plan, develop and execute a television communication that will have a predetermined effect on a specified audience.

THE ART OF LISTENING. Mr. Patrick Blake. 12 lectures of 2 hours. Faculty of Music Room C-203. *Fee:* $45.00.

5B1-119. Mondays at 8:00 p.m., beginning September 24.

5C1-120. Mondays at 8:00 p.m., beginning January 28.

A non-technical course for the concert goer designed to deepen his perception and appreciation of music from the Baroque to the Twentieth Century, and develop his awareness of those structural and stylistic aspects important in the understanding and enjoyment of music. Emphasis is placed upon non-technical analysis as well as the active involvement of the listener with discussions on relevant cultural and historical currents in music as well as the sister arts. Illustrations are made with tape recordings, slides and instruments. The course will culminate with the analysis of works to be played by the Montreal Symphony Orchestra.

MUSIC OF OUR OWN CENTURY. Mr. Patrick Blake. 12 lectures of 2 hours. Faculty of Music Room C-203. *Fee:* $45.00.

5B1-121. Mondays at 5:30 p.m., beginning September 24.

5C1-122. Mondays at 5:30 p.m., beginning January 28.

A non- technical examination of various trends in music of the twentieth century, starting with the impressionists and post-romantics and proceeding to the present day. Works analysed will include those by Ravel, Sibelius, Mahler, Gershwin, Prokofiev, Bartok, Hindemith, Stravinsky, Schoenberg and Somers. The reciprocal influences of jazz will be examined as well as works to be performed by the Montreal Symphony Orchestra.

6.4 HUMAN BEHAVIOUR

5A2-101. INTRODUCTION TO PSYCHOLOGY. 25 lectures of 2 hours. Tuesdays at 8:00 p.m., beginning September 25. Stephen Leacock Bldg., Room 14. *Fee:* $90.00.

Through discussion, film and visual aids the lecturer aims to give a thorough understanding of basic methods and terminology. The course will cover the biological issues in psychology, measurement methods, learning, motivation and perceptual development. Human functioning will be treated in terms of emotion, problem-solving, personality, psychological disorders and includes topics in social psychology. The lecturer's objective will be to develop the student through personal involvement and active observation.

5B2-102. PSYCHOLOGICAL DEVELOPMENT I. 12 lectures of 2 hours. Thursdays at 6:00 p.m., beginning September 27. Stephen Leacock Bldg., Room 14. *Fee:* $45.00.

This course is designed for the interests of the general public, with or without a specialized background in psychology. In the first half, consideration will be given to processes of psychological development from birth to maturity in the areas of intelligence, perception and language.

5C2-103. PSYCHOLOGICAL DEVELOPMENT II. 12 lectures of 2 hours. Thursdays at 6:00 p.m., beginning January 31. *Fee:* $45.00.

This course is a continuation of Psychological Development I, although part I is not necessary for taking part II. Part II will deal with the development of psychological processes from birth to maturity, in the areas of social behaviour, personality and emotion. Emphasis will be placed on the influence of environmental factors on behaviour.

5A2-104. HUMAN RELATIONS I. 25 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. Stephen Leacock Bldg., Rm. 15. *Fee:* $90.00.

This course is a broad introduction to human relations. It uses a theoretical approach but within the limits of the classroom situations students will have an opportunity to develop understanding of their interpersonal experiences. Topics include personality and personality

development with emphasis on perception, motivation, reaction to conflict, problem solving, learning and thinking; theories and problems in interpersonal relationships with emphasis on communication; dynamics of group operations with emphasis on communication in groups, group-pressures, conformity and independence, leadership; structure and dynamics of large organizations; people and technology. Practical applications include discussion of psychological assessment, interviewing, counselling, conference techniques, and others.

5A2-204. HUMAN RELATIONS II. Mr. E. Burnett. 25 lectures of 2 hours each. Wednesdays at 6:00 p.m. beginning September 26. Stephen Leacock Bldg., Room 14. *Fee:* $90.00.

This course will follow on from introductory psychology and will be more suitable for students who have already had some practical and theoretical involvement in the study of group processes such as afforded by the course Problems in Human Relations.

Students in behavioural science generally want to improve their understanding of themselves and others. The course will seek to develop and apply the principles learned to increase understanding of the self, the self in a group setting and the behaviour of organizations.

The self will be explored by thorough psychological assessment of each individual using tests and interviews. The self in the group setting will be studied by observing and reporting on group discussions arising around topics selected by the class and the instructor. The behaviour of organizations will be studied theoretically and will be meant to introduce the student to further study in organizational science.

The aim of the course will be to help participants apply the knowledge developed about the self and human interaction to the formation of personal life and career plans.

5A2-105. INTRODUCTION TO COMPARATIVE SOCIOLOGY. 25 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Bldg., Room 15. *Fee:* $90.00.

The history of sociology; some basic concepts used by sociologists; some classic problems in sociology; the structure and function of the family; the process of training new social members; stratification; the sociology of religion, deviance.

5B2-205. THE SOCIOLOGY OF ADOLESCENCE. Professor A. Ross. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning September 25. Stephen Leacock Bldg., Room 14. *Fee:* $45.00. *Prerequisite:* Introductory course in Sociology.

Canadian adolescents are growing up in a world in which there are few set goals and values. This course attempts to explore this world from their point of view. How has family life changed? Of what importance is the new 'Youth Culture'? What part do schools, religious institutions and youth organizations play in their development? Have the mass media as much influence in shaping their behaviour as many people claim?

The course will also explore the adolescents' peculiar problems in assuming adult roles, and why they tend to be more rebellious than in the past.

Text: Hans Sebald: *Adolescence, A Sociological Analysis*, 1968.

5A2-106. BASIC ISSUES IN MORAL AND POLITICAL PHILOSOPHY. Mr. Dan Sullivan. 25 lectures of 2 hours. Thursdays at 8:00 p.m., beginning September 27. Stephen Leacock Building, room 15. *Fee:* $90.00.

Readings, lectures and discussions will centre around basic problems in moral and political philosophy. Topics included will be the problems of free will, egoism and ethical relativism, as well as a look at the more dominant theories of the basis of moral judgements and moral obligations. We will also examine such basic political concepts as liberty, justice, equality, privacy, and the common good. The theoretical aspect of the course will be supplemented by an examination of certain practical issues such as abortion, civil disobedience, and the relationship between law and morality.

6.5 CANADIAN STUDIES

This year the Centre has created a program of Canadian Studies. In subsequent years the Centre will increase the number and diversity of courses available in this program. This year the following courses will be given.

5B3-101. ANTHROPOLOGY — CANADA'S NATIVE PEOPLES. 12 lectures of 2 hours. Mondays at 6:00 p.m., beginning September 24. Stephen Leacock Building, Room 12. *Fee:* $45.00.

A study of the Canadian Indian and Eskimo culture. This course will try to place the contemporary problems of Canada's indigenous peoples in their historical context.

5B3-102. HISTORY — CANADA TO 1867. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning September 25. Stephen Leacock Building, Room 12. *Fee:* $45.00.

A historical survey of the social, economic and political development of New France in British North America.

5C3-103. HISTORY — CANADA SINCE 1867. 12 lectures of 2 hours. Mondays at 6:00 p.m. beginning January 28. *Fee:* $45.00.

This course will examine the social, economic and political development of Canada since Confederation.

5B3-104. LITERATURE — ENGLISH CANADIAN LITERATURE. 12 lectures of 2 hours. Wednesdays at 6:00 p.m., beginning September 26. Stephen Leacock Building, room 12. *Fee:* $45.00.

A survey of English Canadian prose and poetry from their beginnings to the present.

5C3-105. LITERATURE — FRENCH CANADIAN LITERATURE. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning January 29. *Fee:* $45.00.

A survey of the evolution of French Canadian literature with emphasis on the twentieth century.

NOTE — a working knowledge of French is required for this course.

For information on Sections 6.6, 6.7 and 6.8 please contact Mrs. Eva St-Pierre 392-4935

6.6. OCCUPATIONAL PREPARATION

5A4-101. INTRODUCTION TO DENTAL ASSISTING. Course co-ordinator: Dr. Michael Rennert. 25 lectures of 2 hours. Tuesdays at 7:00 p.m., beginning September 25. Dental Building Strathcona Medical and Dental Building). *Fee:* $105.00. Class limited to 50. *Prerequisite:* High School Matriculation.

This lecture series is given by dentists who are teachers in the Faculty of Dentistry of McGill University. It is introductory in nature and assumes no previous dental assisting experience on the part of the student. The student will be taught the role of the Dental Assistant in: chairside assisting as would be required by a general dentist; some of the responsibilities for assisting the dental specialist; patient education as regards home care; and organization of the general office and patient routine. Students will participate in the handling of dental materials and the proper handling and care of instruments through demonstrations on closed circuit television.

5A4-201. EXPANDED DENTAL AUXILIARY COURSE. This course will teach all the expanded duties recognized by the C.D.S.P.Q. and it is open to girls who have had:

A recognized Dental Assistant Course with one year chairside assisting or—

Two years of chairside assisting.

All applicants will have a personal interview plus a manual dexterity test.

Persons wishing to apply for this course must first contact the Faculty of Dentistry.

COURSE FOR MEDICAL SECRETARIES. Mrs. M. Amiot and Miss H. Wilson. 25 lectures of 2 hours. Wilson Hall, 3506 University Street. *Fee:* $90.00. Class limited. *Prerequisite:* High School Matriculation. *A good command of English, especially in its written form, is required.*

5A4-102. Tuesdays at 6 p.m., beginning September 25.

5A4-103. Thursdays at 6 p.m., beginning September 27.

During the first hour a series of lectures will be given by a qualified medical practitioner covering the basic features of anatomy and physiology. This is dealt with in such a way as to convey a clear and simple picture of the structural organization of the human body. Special attention is paid to the explanation of common clinical words and names of diseases in relation to each organ system dealt with.

The second hour will deal with medical office practice and routine with lectures on correlated subjects such as medicare, accounting for the doctor, etc. Special emphasis is placed on medical terminology. Considerable homework is required.

Texts: Miriam Bredow, *Medical Secretarial Procedures* (McGraw-Hill); Asimov, *The Human Body* (Signet Q-3706) Classics; *Dorland's Medical Dictionary,* pocket edition.

5B4-104. COURSE FOR LEGAL SECRETARIES. Mr. Alan M. Stein. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning September 25. Macdonald Engineering Building, Room 286. *Fee:*$45.00.

This course is designed to give secretaries working in law offices and those who wish to work in law offices an understanding and appreciation of some of the basic legal concepts and terminology employed in their office; of basic rules of civil procedure and instruction in the drafting and preparation of basic forms of civil and corporate proceedings employed in a law office. Basic legal forms and proceedings will be distributed to students.

5C4-204. ADVANCED COURSE FOR LEGAL SECRETARIES. Mr. Alan M. Stein. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning January 29. Macdonald Enginneering Building. *Fee:* $45.00.

This course is designed for Secretaries who have successfully completed the introductory

course for Legal Secretaries or for those Secretaries who have worked in a law office at least two years.

The course is intended to give Secretaries instruction in the understanding and drafting of more difficult civil and corporate forms and concepts employed in law offices and will include such proceedings as preliminary exceptions, motions in revocation of judgment, motion for a declaratory judgment, petition for radiation of a privilege, a petition for provisional and interlocutory injunction, motion for writ of evocation, motion for a writ of habeas corpus, a motion to probate a will, a petition for rectification of civil status, different kinds of contracts such as those relating to sale, partnerships, employment, applications for registration of trade marks, a petition for letters patent and supplementary letters patent, various bankruptcy proceedings, wills, etc.

6.7 PART-TIME STUDY FOR BACHELOR OF NURSING DEGREE

The Bachelor of Nursing program at McGill is designed for graduate nurses from hospital diploma schools. With the transfer of first level preparation for nursing into C.E.G.E.P. and other educational institutions across the country, the Bachelor of Nursing program will phase out. In the meantime, there are graduates from hospital diploma programs who are eligible to work towards a degree and who would find it possible on a part-time basis in the evening. McGill is therefore providing the courses of the *first year* of the Bachelor of Nursing program in the evening through the Centre for Continuing Education.

The requirements for entrance to the program and for completion of the first year are identical with those for the day program. Some variation is permitted in the sequence of courses but for the most part the progression outlined is as follows:

6.7.1 BACHELOR OF NURSING — FIRST YEAR

Part-Time Study — McGill Centre for Continuing Education

*Psychology	3 hrs. X 2 terms
*Sociology	3 hrs. X 2 terms
*Elective — Arts and Science	3 hrs. X 2 terms
Human Growth and Development	2 hrs. X 2 terms
Community Organization	2 hrs. X 1 term
Epidemiology	2 hrs. X 1 term
Unit Management	2 hrs. X 1 term
Principles of Learning	2 hrs. X 1 term
Nursing — field experience	3 hrs. X 2 terms

*Credit may be given for one or two courses taken at Sir George Williams University with "C" grade or better. Courses may be taken in the McGill Summer Session.

The first year of the Bachelor of Nursing Program is spread over 3 years as follows:

YEAR 1

Unit Management
Principles of Learning
Elective — English
French

} For students entering the program

YEAR 2

Human Growth and Development
Epidemiology
Community Organization

YEAR 3

Nursing — Field experience

YEAR I

5B6-301 (570-370). UNIT MANAGEMENT. 13 lectures of 2 hours. Thursdays at 6 p.m., beginning September 27. Wilson Hall. *Fee:* $55.00. Class limited. *Prerequisite:* Graduation from a school of nursing.

This course is planned for those who are now head nurses or who wish to prepare for a position as head nurse. A study of the roles and responsibilities of the head nurse in the provision of care for the hospitalized patient will be undertaken. Topics will include: the head nurse's role in administration, coordination of patient care, communication and staff development. The classes will be conducted in such a way as to encourage maximum group participation.

Students who have been accepted for the B.N. degree and who obtain satisfactory grades in the assignments and examinations will receive 3 credits towards the first year of the degree. Other students who satisfactorily complete modified assignments and examinations will be awarded a certificate for the course .

5C6-302 (570-310). **PRINCIPLES OF LEARNING. 13 lectures of 2 hours. Thursdays at 6 p.m., beginning January 31. Wilson Hall. *Fee:* $55.00.

A study of how we learn and an analysis of those methods of teaching that facilitate learning. This course will carry 3 credits.

5A6-303 (E24D-231). **AMERICAN LITERATURE. (6 credits.) Professor to be appointed. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. Arts Building. *Fee:* $120.00. Class limited.

The major American authors with special emphasis on the period since 1800.

Students electing French through evening study as an elective should see the Language Section of this calendar. Students must take the classification test on the dates indicated in order to be placed in appropriate classes. Each 45 hour course will carry 3 credits.

**Courses marked with two asterisks will only be offered if there is sufficient registration.

YEAR II

5A6-304 (570-312). HUMAN GROWTH AND DEVELOPMENT. 14 lectures of 3 hours. Tuesdays at 6:00 p.m., beginning September 25. Wilson Hall. *Fee:* $75.00.

An introduction to traditional problem areas in psychology viewed from a developmental perspective: learning, perception, motivation, personality, attitude, language and symbolic activity, socialization, and some aspects of abnormal behaviour. The purpose of the course is to develop an appreciation of general principles of behaviour by a developmental approach.

5B6-305 (570-313). EPIDEMIOLOGY AND HEALTH. 13 lectures of 2 hours. Thursdays at 6:00 p.m., beginning September 27. Wilson Hall. *Fee:* $55.00.

The principles of epidemiology, social medicine, and human nutrition.

5C6-306 (570-311). COMMUNITY ORGANIZATION. 13 lectures of 2 hours. Mondays, at 6:00 p.m., beginning January 28. Wilson Hall. *Fee:* $55.00.

A study of the changing patterns of community life and the influences on the development of health services.

6.8 SOCIAL WORK

5A5-401. THERAPEUTIC PSYCHODRAMA. Dr. Allen Surkis. 25 lectures of 2 hours. Mondays at 6:00 p.m., beginning September 24. Wilson Hall. *Fee:* $90.00. Class limited to 25.
Prerequisite: Masters degree in one of the psycho-social sciences relevant to the rendering of mental health services.

An operational and phenomenological orientation to psychotherapy and psychodramatic techniques. From psychoanalytic and client-centred perspectives the aim is to increase sensitivity as well as therapeutic effectiveness with clients. Teaching will include didactic presentations as well as practicum class sessions. Evaluation of students by written take-home examination.

5B5-402. CURRENT APPROACHES TO SOCIAL WORK SUPERVISION. Mrs. Pearl Leibovitch. 12 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. Wilson Hall. *Fee:* $45.00.

A 12 week course for supervisors of social workers and consultants in agencies and hospitals. Content will include a review of pertinent literature and an examination of several models for providing supervision or consultation in generic practice as well as specific method. Individual and group methods will be discussed. Role playing, mini lab and video taping will be employed.

5B5-403. ADVANCED SOCIAL WORK PRACTICE WITH GROUPS: AN INTERACTIONAL APPROACH. Professor Lawrence Shulman. 12 lectures of 2 hours. Tuesdays at 7:00 p.m., beginning September 25. Wilson Hall. *Fee:* $45.00.

This course will focus on an elaboration of areas of investigation introduced in the introductory course. These will include the following: skills required to facilitate mutual aid in the work phase of practice; group theories for understanding group development tasks and the skills required of the worker; techniques of working with systems representatives (teachers, doctors, etc.) and a comparison of theories of group work practice.

Prerequisite: The course is open to social workers who have taken the introductory course in group work practice either through the McGill Continuing Education program or the regular curriculum of the McGill School of Social Work or by special permission of the instructor.

5B5-404. SHORT-TERM COUNSELLING METHODS. Mrs. Phyllis Poland. 12 lectures of 2 hours. Tuesdays at 6:00 p.m., beginning September 25. Wilson Hall. *Fee:* $45.00.

This course is planned for counsellors working in the fields of education, industry, social welfare or health. It will focus on concepts of prevention to help people deal with their everyday problems and their changing roles. Theories of crises intervention, human development and decision-making will be examined. Development of skills will be built upon class members' own experience in working with people.

5C5-405. A CREATIVE APPROACH TO PUPIL PERSONNEL WORK IN THE SCHOOL. Professor Ben Zion Dalfen. 12 lectures of 2 hours. Wednesdays at 7:30 p.m., beginning January 30. *Fee:* $45.00. Open to: Social Workers, Guidance Counsellors, Psychologists and other professionals involved in providing services to schools.

This course will highlight the common conceptual framework of all professionals engaged in providing social work services, guidance counselling services, psychological and psychiatric services to schools. Its primary orientation will be to assist educators and mental health personnel in the schools to learn how to work effectively as a team in serving the many disturbed, non-learning, disruptive and seriously emotionally and motivationally disadvantaged children from both the slums and the suburbs.

7 LANGUAGES

Associate Director — Professor P. D. STEWART

Telephone: 392-4901

7.1 GENERAL INFORMATION

For General Information concerning Refunds, Transfers, Grading System, Textbooks, etc., please see Section 3.

It is the responsibility of each student to read, understand and abide by the rules and procedures printed in this booklet.

7.1.1 REGISTRATION

All registration must be made in person.

All students are required to register in person at Strathcona Hall, 772 Sherbrooke Street West, during the official registration periods listed below.

Day Registration

9 a.m. to 2:30 p.m., Monday to Friday inclusive, September 4 to 21.

Evening Registration

5 to 7 p.m., Monday to Thursday inclusive, September 4 to 20.

Fees are payable in advance, at time of registration.

The University reserves the right to cancel any class for which an insufficient number of registrations has been received. If a class is cancelled, fees will be refunded in full.

A late registration fee of $5.00 per course will be charged after September 21. No registration will be accepted in any language course after the date of the second lecture.

STUDENTS ARE NOT PERMITTED TO ATTEND LECTURES UNTIL THEY HAVE REGISTERED AND PAID THEIR FEES.

Once they have registered, it is the students' responsibility to attend classes without further notice from the Centre.

7.1.2. CERTIFICATE OF PROFICIENCY

All students who have completed or who are completing the requirements for the Certificate of Proficiency in any language in which it is offered (except Translation) and expect to receive it at the Convocation in June, must apply before March 31, using the special application form available at the Centre, attaching photocopies of the Reports of Standing for the relevant courses. If the course is not finished at the time of application, marks will be entered by the Centre. After March 31, a late application fee of $5.00 will be charged.

7.2 ARABIC

Classes Limited to 25 students.

8A3-131. FIRST LEVEL, INTENSIVE. Mr. J. Karam. 50 sessions of 2 hours including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Bronfman Building. *Fee:* $130.00.

This course, planned for beginners, will offer a basic background in Arabic grammar and rudiments of reading and writing in classical and modern Arabic through the audiovisual method. At the beginning explanations will be given either in English or French according to the wishes of the students but the medium of instruction will gradually shift towards Arabic. *Text:* Haywood and Nahmad, *A New Arabic Grammar of the Written Language* (Lund, Humphries).

IA3-231. ECOND LEVEL, INTENSIVE. 50 sessions of 2 hours including 25 1-hour laboratory periods. Tuesdays and Thursdays at 8 p.m., beginning September 25. Bronfman Building. *Fee:* $130.00.

This course offers students who already have acquired a basic knowledge of Arabic the

opportunity of practising writing and reading classical and modern Arabic and of attaining a higher degree of fluency and correctness in the language. Students who have not taken **Arabic 8A3-131** (First Level) will be required to take a classification test.

8A3-331. THIRD LEVEL, INTENSIVE. Mr. J. Karam. 50 sessions of 2 hours including 25 1-hour laboratory periods. Mondays and Wednesdays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $130.00.

This course is intended to help students acquire a greater degree of fluency in Arabic and to provide them with an outline of contemporary Arabic civilization. The course will be conducted partly in Arabic and will include conversation (25 hours of Lebanese colloquial Arabic), composition and review of grammar, as well as reading and discussion of Arabic literature and other cultural material. Candidates who have not taken **Arabic 8A3-131** and **8A3-231** will be required to take a classification test.

Texts: To be distributed at the first lecture.

7.3 CHINESE

Classes Limited to 25 students.

8A3-101. FIRST LEVEL, INTENSIVE. Mrs. P. Wang. 50 sessions of 2 hours including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Peterson Hall. *Fee:* $130.00.

This course aims to teach the basic structure and the vocabulary of Mandarin Chinese through the audio-visual method. Speaking, reading and writing skills will be equally stressed. By the end of the course students should have gained a mastery of basic grammatical constructions for reading and speaking. They should also be able to recognize 400 single and 1200 compound characters.

Texts: Elementary Chinese, Parts I and II (Peking, 1972); P. Wang, *Supplementary Material* (McGill Book Store).

8A3-201. SECOND LEVEL, INTENSIVE. Miss J. Chang. 50 sessions of 2 hours including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Peterson Hall. *Fee:* $130.00.

Prerequisite: A minimum of 50 hours of Chinese.

This course offers the student the opportunity to continue the practice of spoken and written Chinese and to attain a higher degree of fluency and correctness in the language.

Texts: Modern Chinese Readers, Books I and II (Peking, 1964); *Modern Chinese Reader, Parts 1 and 2* (Peking, 1963).

7.4 ENGLISH

All new students must take a classification test before they are allowed to register for courses. The fee for this test is $5.00 (non-refundable).

Students who were registered during a previous session and received a mark of less than 55% in the final examination must repeat the level they were registered in. Those who obtained 55% or more may proceed to the following level. It is strongly recommended that these students register early in order to secure a place in the course of their choice.

Special application forms for the classification test will be found at the end of this booklet. Candidates may also apply in person at the Centre. The completed form together with the $5.00 fee (cash or money order, no cheques, please) must reach the Centre, at the latest, on the Friday before the test. A receipt will then be sent to the applicant. No applicant will be admitted to the test without this receipt.

Applicants will be notified by mail of the level in which they have been classified a few days after the test. They must then register for classes as soon as possible.

Taking the test will not automatically guarantee a place in a course. People who take the earlier tests have a better chance of registering in the course of their choice.

The test will be held on the following dates:

Thursday, August 30, at 7 p.m.
Wednesday, September 5, at 7 p.m.

Tuesday, September 11, at 7 p.m.
Monday, September 17, at 7 p.m.

The location will be given on the receipt form.

7.4.1 **CERTIFICATE OF PROFICIENCY**

Candidates for the Certificate of Proficiency in English must complete a total of 270 class-hours if they begin at Level One. The 270 hours consist of forty-five hours at Levels One to Four inclusive plus ninety hours at Level Five. The ninety-hour requirement at Level Five includes one oral course and one written course.

Students passing these two Fifth Level courses with a minimum of 75% in each course will be granted the Certificate of Proficiency.

Students will be exempted from Levels One, Two, Three or Four according to the results of the classification test. The requirement of Level Five must be completed by all candidates for the Certificate.

There will be three terms of equal duration each year, starting in September, in January and in May. During the January and May terms, only twice-a-week courses will be offered.

ALL COURSES CONSIST OF 22 LECTURES OF 2 HOURS EACH AND AN EXAMINATION (45 HOURS). THE FEE FOR EACH COURSE IS $75.00 UNLESS OTHERWISE INDICATED. **ALL COURSES BEGIN IN THE WEEK OF SEPTEMBER 24.**

7.4.2 **FIRST LEVEL**

Texts: English 900, Books 1 and 2 and *The People Speak* (Collier-Macmillan).

Classes limited to 18 students.

Two lectures per week, ending in December.

8B1-110. Mondays and Wednesdays at 8 p.m. Bronfman Building.
8B1-111. Tuesdays and Thursdays at 6 p.m. Bronfman Building.

7.4.3 **SECOND LEVEL**

Texts: English 900, Books 2 and 3 and *The Silver Elephant* (Collier-Macmillan).

Classes limited to 25 students.

Two lectures per week, ending in December.

8B1-210. Mondays and Wednesdays at 6 p.m. Bronfman Building.
8B1-211. Tuesdays and Thursdays at 6 p.m. Bronfman Building.
8B1-212. Mondays and Wednesdays at 6 p.m. Bronfman Building.
8B1-213. Tuesdays and Thursdays at 6 p.m. Bronfman Building.
8B1-214. Mondays and Wednesdays at 8 p.m. Bronfman Building.
8B1-215. Tuesdays and Thursdays at 8 p.m. Bronfman Building.
8B1-216. Mondays and Wednesdays at 8 p.m. Bronfman Building.

One lecture per week, ending in March.

8A1-220. Mondays at 6 p.m. Stephen Leacock Building.

7.4.4 **THIRD LEVEL**

Texts: English 900, Books 4 and 5 and *The Island of Truth* (Collier-Macmillan).

Classes limited to 25 students.

Two lectures per week, ending in December.

8B1-310. Tuesdays and Thursdays at 6 p.m. Bronfman Building.
8B1-311. Mondays and Wednesdays at 6 p.m. Bronfman Building.
8B1-312. Tuesdays and Thursdays at 6 p.m. Bronfman Building.
8B1-313. Mondays and Wednesdays at 6 p.m. Bronfman Building.
8B1-314. Mondays and Wednesdays at 8 p.m. Bronfman Building.
8B1-315. Tuesdays and Thursdays at 8 p.m. Bronfman Building.

One lecture per week, ending in March.

8A1-320. Wednesdays at 6 p.m. Burnside Hall.

THIRD LEVEL INTENSIVE. (3rd and 4th Levels combined). *Fee:* $130.00.

This course is designed to cover two levels in one eleven week period. Only students qualified to register for Third Level will be admitted.

Texts: Benardo and Pantell, *English: Your New Language, Book 2* (Silver Burdett); *English 900, Book 5* (Collier-Macmillan).

8B1-301. Tuesdays and Thursdays from 6 to 10 p.m. Bronfman Building.
8B1-302. Mondays and Wednesdays from 6 to 10 p.m. Bronfman Building.

FOURTH LEVEL

7.4.5

Texts: English 900, Books 5 and 6 and *Twelve Famous Americans* (Collier-Macmillan).

Classes limited to 25 students.

Two lectures per week, ending in December.

8B1-410. Mondays and Wednesdays at 6 p.m. Burnside Hall.
8B1-411. Mondays and Wednesdays at 6 p.m. Burnside Hall.
8B1-412. Tuesdays and Thursdays at 6 p.m. Burnside Hall.
8B1-413. Tuesdays and Thursdays at 6 p.m. Burnside Hall.
8B1-414. Mondays and Wednesdays at 8 p.m. Burnside Hall.
8B1-415. Mondays and Wednesdays at 8 p.m. Burnside Hall.
8B1-416. Tuesdays and Thursdays at 8 p.m. Burnside Hall.

One lecture per week, ending in March.

8A1-420. Wednesdays at 6 p.m. Burnside Hall.
8A1-421. Thursdays at 8 p.m. Burnside Hall.

FIFTH LEVEL

7.4.6

Classes limited to 25 students.

Attendance Requirement: Fifth level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.

Students entering the Fifth Level may choose the course best suited to their needs among the following:

ENGLISH COMPOSITION. The purpose of this course will be to encourage the student to increase his overall ability in English by acquiring more skill in written expression. The basic principles of composition — unity, coherence and adequate development of the subject matter — will be taught and practised. In addition, paraphrasing, letter and report writing, summarizing and precising will be covered.
Text: Arapoff, *Writing through Understanding* (Holt, Rinehart & Winston).

Two lectures per week, ending in December.

8B1-510. Mondays and Wednesdays at 6 p.m. McConnell Engineering Building.
8B1-511. Tuesdays and Thursdays at 6 p.m. McConnell Engineering Building.

One lecture per week, ending in March.

8A1-520. Tuesdays at 8 p.m. McConnell Engineering Building.

ENGLISH COMPOSITION FOR BUSINESS WRITING. This course offers a detailed study of the composition of various types of business letters and includes a review of English grammar and syntax. Business phrases, terminology, idioms and usage are given particular attention. Difficulties experienced by those learning English as a second language are discussed and explained. Students are expected to prepare written assignments which will be corrected and returned. *Text:* Stewart, Lanham and Zimmer, *Business English and Communication* (Canadian Edition) (McGraw-Hill).

Two lectures per week, ending in December.

8B1-515. Mondays and Wednesdays at 6 p.m. McConnell Engineering Building.
8B1-516. Tuesdays and Thursdays at 6 p.m. McConnell Engineering Building.

One lecture per week, ending in March.

8A1-521. Tuesdays at 6 p.m. Stephen Leacock Building.

ADVANCED ENGLISH CONVERSATION. This course is intended for advanced students who want intensive practice in spoken English but feel they still require help with grammar and syntax. Written work will be assigned every week.
Text: Danielson and Hayden, *Readings in English* (Prentice-Hall).

8B1-550. Mondays and Wednesdays at 6 p.m. McConnell Engineering Building.
8B1-551. Tuesdays and Thursdays at 8 p.m. McConnell Engineering Building.
8B1-552. Mondays and Wednesdays at 8 p.m. McConnell Engineering Building.

LIVING ENGLISH (ORAL). This course is offered mainly for improving vocabulary, pronunciation, idiom and sentence structure. This is achieved by the reading of texts from modern English and American authors and also of scenes from modern plays which will familiarize students with modern spoken English. Scenes, dialogues and short stories provide the opportunity for active student participation in discussing, reproducing and reading aloud.
Texts: Day, *An Advanced English Practice Course* (Longman); J. L. Steffensen, Jr., *Great Scenes from the World Theater* (Avon); Millington-Ward, *British and American Short Stories* (Longman).

8A1-560. Wednesdays at 6 p.m. Stephen Leacock Building.

7.5 FRENCH

Classes limited to 25 students (except in First Level).

All new students must take a classification test before they are allowed to register for courses. The fee for this test is $5.00 (non-refundable).

Students who were registered during a previous session and received a mark of less than 55% in the final examination must repeat the level they were registered in. Those who obtained 55% or more may proceed to the following level. It is strongly recommended that these students register early in order to secure a place in the course of their choice.

Special application forms for the classification test will be found at the end of this booklet. Candidates may also apply in person at the Centre. The completed form together with the $5.00 fee (cash or money order, no cheques, please) must reach the Centre, at the latest, on the Friday before the test. A receipt will then be sent to the applicant. No applicant will be admitted to the test without this receipt.

Applicants will be notified by mail of the level in which they have been classified a few days after the test. They must then register for classes as soon as possible.

Taking the test will not automatically guarantee a place in a course. People who take the earlier tests have a better chance of registering in the course of their choice.

The test will be held on the following dates:

Thursday, September 6, at 7 p.m.
Wednesday, September 12, at 7 p.m.
Tuesday, September 18, at 7 p.m.

The location will be given on the receipt form.

7.5.1. **CERTIFICATE OF PROFICIENCY**

Candidates for the Certificate of Proficiency in French must complete a total of 270 class-hours if they begin at Level One. The 270 hours consist of forty-five hours at Levels One to Four inclusive plus ninety hours at Level Five. The ninety-hour requirement at Level Five includes one oral course and one written course.

Students passing these two Fifth Level courses with a minimum of 75% in each course will be granted the Certificate of Proficiency.

Students will be exempted from Levels One, Two, Three or Four according to the results of the classification test. The requirement of Level Five must be completed by all candidates for the Certificate.

7.5.1.1 **Courses**

Courses are offered at five different levels. At each level, various types of courses are available. The 01 series of courses (101, 201, 301, 401) makes use of the language laboratory but written work is integrated into the courses and students should be prepared to devote a sizeable amount of time to homework. In the 10 series of courses (110, 115, 210, 215, 310, 315, 410, 415) sound systems, grammar and vocabulary will be acquired through classroom practice. The approach will be mainly oral but written work will be assigned and discussed in class. Students who have taken one type of course in one term may take another type in the following session in order to suit their individual requirements.

There will be three terms of equal duration each year, starting in September, in January and in May. During the January and May terms, only twice-a-week courses will be offered.

ALL COURSES CONSIST OF 22 LECTURES OF 2 HOURS EACH AND AN EXAMINATION (45 HOURS). THE FEE FOR EACH COURSE IS $75.00.

COURSES WILL BEGIN IN THE WEEK OF SEPTEMBER 24.

7.5.2 **FIRST LEVEL**

Two lectures per week, ending in December.

Classes limited to 18 students.

8B2-101. With laboratory. Mondays and Thursdays at 6 p.m. Peterson Hall.
Texts: Politzer, Hagiwara and Carduner, *L'Echelle* and *Laboratory Workbook* to accompany (Blaisdell).

8B2-110 and 8B2-111. Without laboratory.
Text: Mauger and Bruezière, *Le français accéléré* (Hachette).

8B2-110. Mondays and Wednesdays at 6 p.m. Burnside Hall.

8B2-111. Tuesdays and Thursdays at 8 p.m. Peterson Hall.

SECOND LEVEL

7.5.3

Two lectures per week, ending in December.

8B2-201. With laboratory. Mondays and Thursdays at 6 p.m. Peterson Hall.
Texts: Politzer, Hagiwara and Carduner, *L'Echelle* and *Laboratory Workbook* to accompany (Blaisdell).

8B2-210. Without laboratory. Mondays and Wednesdays at 8 p.m. Peterson Hall.
Text: Mauger and Bruezière, *Le français accéléré* (Hachette).

One lecture per week, ending in March.

8A2-215. Tuesdays at 6 p.m. Peterson Hall.
Text: Mauger and Bruezière, *Le français accéléré* (Hachette).

THIRD LEVEL

7.5.4

Two lectures per week, ending in December.

8B2-301. With laboratory. Mondays and Thursdays at 6 p.m. Peterson Hall.
Text: Politzer and Hagiwara, *Active Review of French* (Blaisdell).

8B2-310. Without laboratory. Tuesdays and Thursdays at 6 p.m. Burnside Hall.
Text: Vinay, Rondeau and Lynch: *Le français international, Level 3, Part 2* (Centre Educatif et Culturel).

One lecture per week, ending in March.

8A2-315 Tuesdays at 8 p.m. Peterson Hall.
Text: Vinay, Rondeau and Lynch: *Le français international, Level 3, Part 2* (Centre Educatif et Culturel).

FOURTH LEVEL

7.5.5

Two lectures per week, ending in December.

8B2-401. With laboratory. Mondays and Thursdays at 6 p.m.
Text: Politzer and Hagiwara, *Active Review of French* (Blaisdell).

8B2-410 and 8B2-411. Without laboratory.
Text: Barson, *La grammaire à l'œuvre* (Holt, Rinehart and Winston).

8B2-410. Mondays and Wednesdays at 6 p.m. Burnside Hall.

8B2-411. Tuesdays and Thursdays at 8 p.m. Peterson Hall.

One lecture per week, ending in March.

8A2-415. Tuesdays at 6 p.m. Peterson Hall.
Text: Barson, *La grammaire à l'œuvre* (Holt, Rinehart and Winston).

FIFTH LEVEL

7.5.6

Attendance Requirement: Fifth Level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.

Two lectures per week, ending in December.

8B2-520. CONVERSATION. Mondays and Wednesdays at 6 p.m. Peterson Hall.
This course will be conducted in the form of discussions, debates and short speeches on a variety of subjects. Points of grammar and syntax will be explained as necessary.

8B2-530. COMPOSITION. Tuesdays and Thursdays at 8 p.m. Burnside Hall.
This course will consist of exercises in grammar, composition and stylistics. Homework will be assigned and discussed in class.
Text: Ginestier, Maillet and Alvernhe, *Culture et civilisation françaises* (Didier).

One lecture per week, ending in March.

8A2-525. CONVERSATION. Mondays at 8 p.m. Peterson Hall.
Similar to 8B2-520 above.

8A2-535. COMPOSITION. Wednesdays at 6 p.m. Peterson Hall.
Similar to 8B2-530 above.
Text: Ginestier, Maillet and Alvernhe, *Culture et civilisation françaises* (Didier).

7.6 GERMAN

Classes limited to 22 students.

Students who need assistance in deciding the level at which they should register may telephone the Department of German (392-5091 or 392-5093) between 9 a.m. and 5 p.m. after September 3 or consult any staff member of the Department at 1001 Sherbrooke Street West.

7.6.1 CERTIFICATE OF PROFICIENCY

A Certificate of Proficiency in German will be granted on the successful completion of the graduated courses described below. A mark of 75% or higher must be obtained in the Fourth level examination in order to gain the Certificate of Proficiency. Those who have studied German at some other institution may be granted credit for one or more years depending on the progress they have made but must take at least the Third and Fourth Level courses at the McGill Centre for Continuing Education.

INTENSIVE PROGRAM (2 years).

FIRST AND SECOND LEVEL, INTENSIVE (Beginners). 50 sessions of 2 hours including 25 1-hour laboratory periods. *Fee:* $130.00.

In this course the direct method will be used. Instruction will be in German from the beginning. With the help of filmstrips and cards the vocabulary will be picked up rapidly and without effort. One hour a week will be spent in the language laboratory. The drills will make grammar a matter of instinct. While the other lectures are devoted to oral work, the student will have to fill in the blanks in a book at home. The written homework will take about two hours per week, and will be corrected by the instructor week by week. At the end of the course, most students will be able to converse in German, to read a German newspaper, and to write in German. Students who complete this course will be able to register in a Third Level course.

Texts: Kessler, *Deutsch für Ausländer, Parts 1 and 1a* (2 volumes) (Verlag für Sprachmethodik, Königswinter, Germany).

8A4-101. Mondays and Wednesdays at 6 p.m., beginning September 24. Bronfman Building.

8A4-102. Tuesdays and Thursdays at 6 p.m. beginning September 25. Bronfman Building.

THIRD AND FOURTH LEVEL, INTENTIVE (Final). This course combines the program of courses **8A4-310 and 8A4-410.** Students who obtain 75% or higher will receive the Certificate of Proficiency. *Prerequisite:* 100 hours of German.

8A4-301. 50 sessions of 2 hours. Mondays and Wednesdays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $130.00.
Text: Schulz and Sundermeyer, *Deutsche Sprachlehre für Ausländer* (Hueber).

REGULAR PROGRAM (4 courses)

FIRST LEVEL. (Beginners). 25 sessions of 2 hours. *Fee:* $80.00.
This direct-method course is designed for students who want to speak and understand everyday German.
Text: Schulz-Griesbach, *Deutsche Sprachlehre für Ausländer.* Grundstufe in einem Band (Hueber).

8A4-110. Mondays at 6 p.m. beginning September 24. Bronfman Building.

8A4-111. Tuesdays at 6 p.m., beginning September 25. Bronfman Building.

8A4-210. SECOND LEVEL. 25 sessions of 2 hours. Wednesdays at 6 p.m. beginning September 26. Bronfman Building. *Fee:* $80.00.
Prerequisite: 50 hours of German.

This course offers the student the opportunity to continue the practice of spoken and written German and to attain some degree of fluency and correctness in the language. Such discussion of grammar and syntax as is found necessary will be given.
Text: Schulz-Griesbach, *Deutsche Sprachlehre für Ausländer.* Grundstufe in einem Band (Hueber).

8A4-310. THIRD LEVEL. 25 sessions of 2 hours. Thursdays at 6 p.m., beginning September 27. Bronfman Building. *Fee:* $80.00.
Prerequisite: 100 hours of German.

This course will consist of conversation, composition and readings of literary texts. It is open to persons with a speaking knowledge of German, but who lack a systematic knowledge of grammar and would like to improve their written style.
Text: Schulz and Sundermeyer, *Deutsche Sprachlehre für Ausländer* (Hueber).

8A4-410. FOURTH LEVEL. *Attendance Requirement:* Fourth Level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.
25 sessions of 2 hours. Mondays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $80.00.
Prerequisite: 150 hours of German.
This course will consist of conversation, composition and translation.
Text: Schulz and Sundermeyer, *Deutsche Sprachlehre für Ausländer* (Hueber).

7.7 GREEK (MODERN)

Classes limited to 25 students.

8B5-110. FIRST LEVEL. 22 sessions of 2 hours. Tuesdays and Thursdays at 6 p.m., beginning September 25. Bronfman Building. *Fee:* $75.00.
This course is planned for beginners. It will begin with the spoken language and will aim at the acquisition of automatic skills. It will gradually proceed to the written language and will aim at developing the ability to understand simple prose and to write a simple composition. In the second half of the course classes will be conducted as far as possible in Greek.
Text: Farmakides, *A Manual of Modern Greek* (to be sold in class).

8B5-210. SECOND LEVEL. 22 sessions of 2 hours. Tuesdays and Thursdays at 8 p.m., beginning September 25. Bronfman Building. *Fee:* $75.00.
This course is intended for students who have a knowledge of the spoken language and of the basic rules of Greek grammar. Students' correct and active use of the language will be encouraged through the written preparation and oral presentation of projects. Students will be introduced to the cultural content of the language and to some modern Greek literature. The class will be conducted in Greek.
Texts: Farmakides, *A Manual of Modern Greek; A Modern Greek Reader; Tables of Declensions and Conjugations* (to be sold in class).

7.8 ITALIAN

Classes limited to 25 students.

Students who need assistance in deciding the level at which they should register may telephone the Department of Italian (392-4567) between 9 a.m. and 5 p.m. after September 3.

7.8.1 CERTIFICATE OF PROFICIENCY

A Certificate of Proficiency in Italian will be granted on the successful completion of the graduated courses, extending over four years, described below. A mark of 75% or higher must be obtained in the Fourth Level examination in order to gain the Certificate of Proficiency. Those who have studied Italian at some other institution may be granted credit for one or more years depending on the progress they have made but must take at least Third and Fourth Level courses at the McGill Centre for Continuing Education.

8A6-101. FIRST LEVEL, INTENSIVE. Miss A. Sacconaghi. 50 sessions of 2 hours, including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Bronfman Building. *Fee: $130.00.*
This course is designed for beginners who wish to acquire a good working knowledge of the language in one year. Students obtaining a good standing in the final examination will be admitted directly to the combined Third and Fourth year course. The direct method will be used and instruction will be in Italian from the beginning. Conversation and class discussion will be encouraged. The language laboratory will be used to improve pronunciation, develop aural comprehension and to drill students in basic speech patterns.
Texts: D'Andrea and Stewart, *Il manuale italiano;* Olken, *Racconti del Novecento* (Appleton-Century-Crofts).

8A6-110. FIRST LEVEL, REGULAR. 25 sessions of 2 hours. Wednesdays at 6 p.m., beginning September 26. Bronfman Building. *Fee:* $80.00.

A beginner's course using the direct method approach. Special emphasis will be placed on building a practical vocabulary for everyday use through conversation and questions on the readings. Written exercises and oral drills will acquaint students with basic language patterns and grammatical structures.

Texts: D'Andrea and Stewart, *Il manuale italiano;* Olken, *Racconti del Novecento* (Appleton-Century-Crofts).

8A6-210. SECOND LEVEL. Mrs. C. Mindel. 25 sessions of 2 hours. Wednesdays at 6 p.m., beginning September 26. Bronfman Building. *Fee:* $80.00.

This course is designed to develop fluency and correctness in speaking, reading and writing the language. Italian periodicals and texts, and visual aids, will be used to promote class discussion on current events and also on life in modern Italy.

Texts: D'Andrea and Stewart, *Il manuale italiano;* Olken, *Racconti del Novecento* (Appleton-Century-Crofts).

8A6-310-410. THIRD AND FOURTH LEVELS. *Attendance Requirement:* Fourth Level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.

Professor P. Stewart. 25 sessions of 2 hours. Mondays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $80.00.

This course will be conducted entirely in Italian and will include conversation, readings, composition, and an outline of contemporary Italian civilization. The emphasis will be placed on class discussion of the reading, and of the main features of contemporary Italy. The areas of study will be in alternate years: 1. Italian novels and short stories; 2. Italian plays and cinema. Those who are in their Fourth year of Certificate of Proficiency studies are required to study an additional text.

Texts: Dizionario italiano (Garzanti); Pirandello, *Sei personaggi in cerca d'autore* (Manchester University Press); Buzzati, *Un caso clinico* (Appleton-Century-Crofts); Pacifici, *Italia: vita e cultura* (Random House).

8A6-510. COMMERCIAL ITALIAN. Miss A. Sacconaghi. 25 sessions of 2 hours. Wednesdays at 6 p.m., beginning September 26. Bronfman Building. *Fee:* $50.00.

This course will be given in collaboration with the Italian Chamber of Commerce, Montreal, and is designed for students who wish to improve their knowledge of the Italian language and who are especially interested in acquiring a grounding in Italian business terminology and commercial practice. The course will include a series of ten lectures given by prominent personalities in the business community particularly interested in industrial, commercial and financial contacts between Canada and Italy.

Texts: Santagata, *Moderna corrispondenza commerciale italiana* (Hoepli); Perlot, *Tecnica d'ufficio* (Capelli).

7.9 JAPANESE

Classes limited to 25 students.

8A3-151. FIRST LEVEL, INTENSIVE. Mrs. M. Takahatake. 50 sessions of 2 hours, including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Bronfman Building. *Fee:* $130.00.

Basic training in Japanese conversation, reading and writing. Instruction in the fundamentals of grammar with special emphasis on pronunciation and aural comprehension.

Texts: Japanese Language Promotion Centre, *Beginning Japanese;* Masuda, *New Pocket Japanese-English Dictionary* (Kenkyusha).

8A3-251. SECOND LEVEL, INTENSIVE. Mrs. A. Burton. 50 sessions of 2 hours, including 25 1-hour laboratory periods. Mondays and Wednesdays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $130.00.

This course offers an opportunity to continue the practice of spoken Japanese. It will also emphasize reading and writing (Kana and Kanji) thus enabling students to attain a higher degree of fluency and correctness in the language.

Text: Japanese Language Promotion Centre, *Intensive Course in Japanese, Elementary, Part II* (Maruzen, Tokyo).

7.10 RUSSIAN

Classes limited to 25 students.

Students who need assistance in deciding the level at which they should register may telephone the Department of Russian (392-4610 or 392-4616) between 9 a.m. and 5 p.m. after September 3.

7.10.1 CERTIFICATE OF PROFICIENCY

A Certificate of Proficiency in Russian will be granted on the successful completion of the graduated courses, extending over four years, described below. A mark of 75% or higher must be obtained in the Fourth level examination in order to gain the Certificate of Proficiency. Those who have studied Russian at some other institution may be granted credit for one or more years depending on the progress they have made but must take at least the Third and Fourth Level courses at the McGill Centre for Continuing Education.

8A7-101. FIRST LEVEL, INTENSIVE. Mrs. T. Patera. 50 sessions of 2 hours including 25 1-hour laboratory periods. Tuesdays and Thursdays at 6 p.m., beginning September 25. Bronfman Building. *Fee:* $130.00.

The direct method will be used, with instruction largely in Russian from the very beginning. Emphasis will be laid on the audio-visual approach. Extensive use will be made of spoken material and songs recorded in the Soviet Union. Approximately one hour per week will be spent in the language laboratory. The Russian Minimum Word List used at Moscow University will guide the choice of words. A minimum of one and a half hours of work at home will be required each week. At the end of the course most students will be able to converse easily in Russian, to read a Soviet newspaper and to write straightforward letters in Russian.

Text: Domar, *Basic Russian* (McGraw-Hill).

8A7-110. FIRST LEVEL, REGULAR. Miss N. Slejskova. 25 sessions of 2 hours. Mondays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $80.00.

This course will begin with the general characteristics of the Russian language, the alphabet, phonetic values of separate letters, and the basic rules of grammar. There will be reading, oral and written exercises, and translation into English of selected articles, accompanied by a gradual introduction to Russian culture and civilization.

Text: Domar, *Basic Russian* (McGraw-Hill).

8A7-210. SECOND LEVEL. Professor P. M. Austin. 25 sessions of 2 hours. Mondays at 6 p.m., beginning September 24. Bronfman Building. *Fee:* $80.00.

This course includes a rapid review and completion of Part I of R. Domar's *Basic Russian* before proceeding to Part II; grammar and oral exercises; reading and translation of selected texts by modern Soviet Russian authors. On request some time will be devoted to Scientific Russian, and if there is sufficient demand a separate study group may be formed.

Text: Domar, *Basic Russian* (McGraw-Hill).

8A7-310. THIRD LEVEL. Mrs. M. Karaivan. 25 sessions of 2 hours including 25 1-hour periods in the language laboratory. Thursdays at 8 p.m., beginning September 27. Bronfman Building. *Fee:* $80.00.

This course is intended to help students to acquire a greater degree of aural comprehension and fluency in Russian while continuing the review of grammar.

Text: Domar, *Basic Russian* (McGraw-Hill).

8A7-410. FOURTH LEVEL. *Attendance Requirement:* Fourth Level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.

Mrs. M. Karaivan. 25 sessions of 2 hours. Mondays at 8 p.m., beginning September 24. Bronfman Building. *Fee:* $80.00.

This course will be conducted entirely in Russian. The emphasis will be on conversation. Points of grammar and syntax will be explained as the need arises. Discussions will be based in part on readings in Russian civilization and folklore. Those who wish to apply for the Certificate of Proficiency are required to complete additional reading and written work.

Text: Domar, *Basic Russian* (McGraw-Hill).

7.11 SPANISH

Classes limited to 25 students.

Students who need assistance in deciding the level at which they should register may telephone the Department of Spanish (392-4600) between 9 a.m. and 5 p.m. after September 3.

7.11.1 **CERTIFICATE OF PROFICIENCY**

A Certificate of Proficiency in Spanish will be granted on the successful completion of the graduated courses, extending over four years, described below. A mark of 75% or higher must be obtained in the Fourth level examination in order to gain the Certificate of Proficiency. Those who have studied Spanish at some other institution may be granted credit for one or more years depending on the progress they have made but must take at least Third and Fourth Level courses at the McGill Centre for Continuing Education.

FIRST LEVEL. 25 sessions of 2 hours. *Fee:* $80.00.

In this course, frequent and systematic drill is used to develop rapid response to spoken Spanish, and to enable the student to read quickly. Use of the language laboratory is an integral part of the course.

8A8-110. Miss K. Sibbald Mondays at 6 p.m., beginning September 24. Bronfman Building.

8A8-111. Professor V. Ugalde. Tuesdays at 6 p.m., beginning September 25. Bronfman Building.

8A8-112. Professor N. Martinez. Wednesdays at 6 p.m., beginning September 26. Bronfman Building.

8A8-113. Professor M. Amasuno. Thursdays at 6 p.m., beginning September 27. Bronfman Building.

Texts: Gordon, Rolph and Segall, *Spanish: A New Approach* (University of Toronto); Barlow and Steele, *Noche Oscura en Lima* (Appleton-Century-Crofts).

SECOND LEVEL. 25 sessions of 2 hours. *Fee:* $80.00.

For people who already have a basic knowledge of Spanish. The aims of the course are to speed up fluency and oral comprehension, to achieve correctness of pronunciation and give a review of grammatical structures. The class will include oral and written exercises, and will be conducted in Spanish. Readings will be taken from modern Spanish and Spanish-American literature.

8A8-210. Professor A. Michalski. Mondays at 6 p.m., beginning September 24. Bronfman Building.

8A8-211. Professor M. Harvey. Wednesdays at 6 p.m., beginning September 26. Bronfman Building.

Texts: Anduvar and Dixson, *Graded Exercises in Spanish* (Regents); Barlow and Steele, *Noche Oscura en Lima* (Appleton-Century-Crofts).

8A8-310-410. THIRD AND FOURTH LEVELS. *Attendance Requirement:* Fourth Level students who have attended less than ⅔ of lectures will not be permitted to write the final examination unless they can furnish written proof of a valid reason for the absences.

Professor J. Sanchez. 25 sessions of 2 hours. Tuesdays at 6 p.m., beginning September 25. Bronfman Building. *Fee:* $80.00.

The combined Third and Fourth level courses include a review of grammar, phonetics, conversation, supplementary vocabulary, cultural material and reading and discussion of Spanish and Latin American literature. In the 1973-74 session, contemporary Spanish literature will be stressed. Fourth level students studying for the Certificate of Proficiency are required to study an additional text.

7.12 TRANSLATION

All classes limited.

7.12.1 **REQUIREMENTS**

Prerequisite: A considerable degree of fluency and correctness in both English and French, especially written.

A four-year program leading to a Certificate of Proficiency upon successful completion of the Third year and to a Diploma upon successful completion of the Fourth year.

After completing First and Second year, students will normally elect to specialize in translation into English or in translation into French. The Third and Fourth year courses include French and English sections.

Students wishing to qualify as certified translators in both English and French may not take both languages concurrently.

The pass mark in all years is 55%. (See General Information, Section 3.)

The Certificate of Proficiency in Translation will be awarded to students obtaining 70% at the end of the Third year course. The Certificate of Proficiency is prerequisite for registration in Fourth year.

The Diploma in Translation will be awarded to students obtaining 70% at the end of the Fourth year course.

PROGRAM

7.12.2

The program consists of the following courses:

FIRST YEAR — METHODOLOGY AND PRACTICE OF TRANSLATION (BILINGUAL). Introduction to the basic principles of bilingual translation through careful analysis of selected texts and practice work leading to improved linguistic skills in both English and French.

SECOND YEAR — TECHNICAL TRANSLATION I (BILINGUAL). The fields covered will be commercial correspondence, banking and finance.

THIRD YEAR — TECHNICAL TRANSLATION II (UNILINGUAL). The fields covered will be legal terminology, insurance, advertising, and public relations.

FOURTH YEAR — GENERAL AND LITERARY TRANSLATION (UNILINGUAL). The material covered will be prose of literary quality ranging from the critical essay to the descriptive or psychological novel. Students will be encouraged to undertake the translation of major contemporary works as personal research projects.

7.12.2.1 **Admission of New Students**

Admission of new students is definitely selective and can be secured by examination only.

Applicants for admission must take the Entrance Examination which is held each year in June.

A special application form for the Entrance Examination may be obtained by writing or telephoning the Centre in May.

No dictionaries are allowed at this examination.

The examination fee is $5.00 (non-refundable).

Applicants will be notified of their admission by mail.

Admission is valid only for the year in which the examination is taken.

7.12.2.2 **Repeaters**

Students registered in any year of the program who did not sit or failed the examination in April 1973 and wish to repeat or continue must apply in writing to the Committee on Translation Courses before August 31.

7.12.2.3 **Former Students**

Former students are those who were not registered in the Translation Course in 1972-73. In order to be re-admitted into the course, they must apply in writing to the Committee on Translation Courses before August 31. Applicants are requested to include the telephone number at which they can be reached between 9 a.m. and 5 p.m. All applications will be judged individually.

Holders of the Certificate of Proficiency wishing to qualify for the Diploma will be admitted to Fourth Year in their major language. These students need not apply in writing but should come to register during the registration period. They should bring a photocopy of their Certificate of Proficiency.

THE DECISIONS OF THE COMMITTEE WILL BE FINAL.

7.12.2.4 **Fees**

The student fee, payable in full at registration, is the same for each course and is $80.00.

ALL COURSES CONSIST OF 25 LECTURES OF 2 HOURS EACH.

7.12.3

TIMETABLE

FIRST YEAR — METHODOLOGY AND PRACTICE OF TRANSLATION (BILINGUAL)

8A9-101. Mondays at 6 p.m., beginning September 24. Stephen Leacock Building.

8A9-103. Mondays at 6 p.m., beginning September 24. Stephen Leacock Building.

8A9-105. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Building.

8A9-107. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Building.

8A9-109. Wednesdays at 8 p.m., beginning September 26. Stephen Leacock Building.

SECOND YEAR — TECHNICAL TRANSLATION I (BILINGUAL).

8A9-201. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Building.

8A9-203. Tuesdays at 6 p.m., beginning September 25. Stephen Leacock Building.

8A9-205. Wednesdays at 8 p.m., beginning September 26. Stephen Leacock Building.

THIRD YEAR — TECHNICAL TRANSLATION II (UNILINGUAL).

8A9-301. FRENCH SECTION. Wednesdays at 8 p.m., beginning September 26. Stephen Leacock Building.

8A9-303. FRENCH SECTION. Wednesdays at 6 p.m. beginning September 26. Stephen Leacock Building.

8A9-302. ENGLISH SECTION. Thursdays at 6 p.m., beginning September 27. Stephen Leacock Building.

FOURTH YEAR — GENERAL AND LITERARY TRANSLATION (UNILINGUAL).

8A9-401. FRENCH SECTION. Wednesdays at 8 p.m., beginning September 26. Stephen Leacock Building.

8A9-402. ENGLISH SECTION. Wednesdays at 6 p.m., beginning September 26. Stephen Leacock Building.

8 MANAGEMENT—GRADUATE AND PROFESSIONAL DEVELOPMENT PROGRAMS

Associate Director: Professor W. H. ELLIS

Telephone: 392-3900

8.1 INTRODUCTION

This section of the Centre offers courses leading to the Diploma of the Institute of Chartered Accountants of Quebec (C.A.), the Diploma in Management and evening courses towards the M.B.A. degree. It also offers courses for Professional Development.

8.1.1 EXAMINATIONS

An examination is held at the end of each course unless specifically excepted. Candidates who fail to pass the final examination in a course may be permitted to write a supplemental examination in July. To qualify for supplemental privileges, students must first write the final examination in the course and obtain at least 40%. Candidates who fail to pass the supplemental examination will be required to repeat the course.

Students will receive written confirmation of their examination or course results after each term. As the results of each course become available, they will be posted on the Notice Board in Strathcona Hall by STUDENT NUMBER. Results can NOT be obtained by telephone.

8.1.1.1 Grading System

The Centre uses the grading system common to the university. Unless otherwise noted in the description of an individual course, grading will be as follows:

A — 80-100%
B — 65-79%
F — below 65%

8.1.2 LIBRARIES

Full library privileges are available to all registered students at the following locations:

i) The Management Library
Samuel Bronfman Building
1001 Sherbrooke Street West

ii) The McLennan Library
McGill campus

A library card may be obtained from the library after the second lecture upon presentation of the student card.

8.2 DIPLOMA IN MANAGEMENT (In Cooperation with the Faculty of Management)

To meet the demand for the more advanced and broader training required by those graduates whose work is primarily administrative and managerial, the Centre for Continuing Education, in cooperation with the Faculty of Management, offers a series of courses leading to a Diploma in Management. While these courses are intended primarily for those interested in obtaining the Diploma, all courses are open to any graduate interested in an individual course.

Please note that the two courses leading to the Diploma in Management that are being given at Macdonald College are also listed in this section, as registration for those courses must take place at McGill.

8.2.1 ADMISSION REQUIREMENTS

1) Applicants must have a university degree with high standing from an approved university (exceptions indicated next paragraph). When registering, proof of university graduation must be provided and arrangements made for an official transcript to be mailed to the Associate Director, Management Graduate Programs. This also applies to McGill graduates.

2) Some non-university graduates may be admitted on a provisional basis. After completing two subjects their records will be reviewed. Those who have distinguished themselves may be given permission to pursue the program as regular students on approval of the Faculty of Graduate Studies and Research. Provisional students include C.A.'s, Professional Engineers (who are not university graduates), Technical College graduates and those holding the H.N.C.

3) Students who have completed some of the required courses at the undergraduate level at McGill or elsewhere may substitute elective courses. In requesting exemption from required courses (a maximum of two) the student must submit an official description of the content of the course he regards as equivalent and an official record of his grade. No credit will be given for undergraduate courses.

4) Students who have successfully completed advanced Accounting studies may be granted exemption from Accounting — A Management Approach. Exemption from any of the 8 Direct Entry Courses is rarely granted.

5) Candidates must obtain a mark of not less than 65% in the final examinations in each course. Those who fail to obtain 65% may under certain circumstances write a supplemental examination (Fee $15.00), but if the standing obtained in the supplemental examination is less than 65%, the student must repeat the course to receive the Diploma credit. Candidates are permitted to repeat any course once only. No candidate who has failed more than three courses on the first attempt will be granted the Diploma.

6) Students who have completed post graduate level courses at a recognized university may apply for transfer of credits. An official description of the courses taken elsewhere and the marks obtained must be submitted before completing the first year of the program. In all but exceptional cases, a maximum transfer of two credits will be permitted out of the required eight.

7) The Diploma may be obtained in three years but the student is advised to spread the work over a longer period not exceeding seven years.

8.2.2 RECENT CHANGES IN REQUIREMENTS

Students presently enrolled in the Diploma program should recognize that substantial changes have been made in the requirements to obtain the Diploma. The number of courses required has been reduced from nine courses to eight.

Any Diploma candidate who requires further clarification of his status under the new requirements for the Diploma should apply for such clarification in writing or in person to the Associate Director, Management — Graduate Programs, Strathcona Hall, McGill University. The number and nature of courses previously completed and the student's problem should be clearly indicated in such communications.

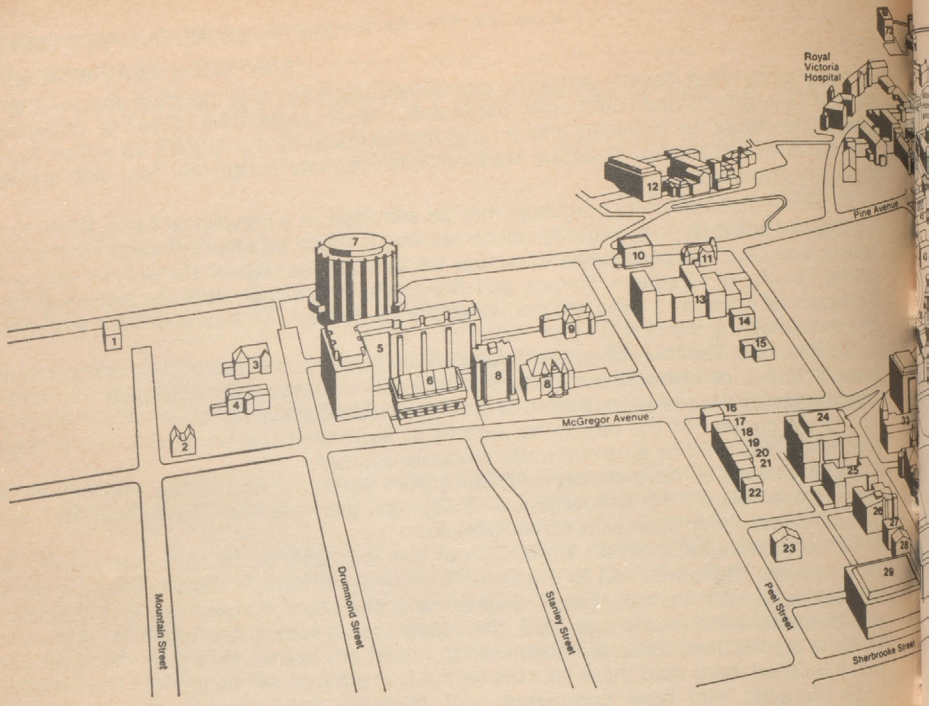
8.2.3 CORE COURSES

Students wishing to qualify for the Diploma in Management must complete at least one course in each of the four groups listed below:

1) Business Statistics or Statistics for Business Decisions.
2) Accounting — A Management Approach or Managerial Finance
3) Economic Environment of the Firm or Economic Analysis of Business
4) Organizational Behaviour or Business and Industrial Psychology

All Diploma candidates must take, in addition to the four required "core" courses (one from each group listed above), the equivalent of four full year electives. Suggested programs for those wishing to specialize in the various functional areas of business are also presented.

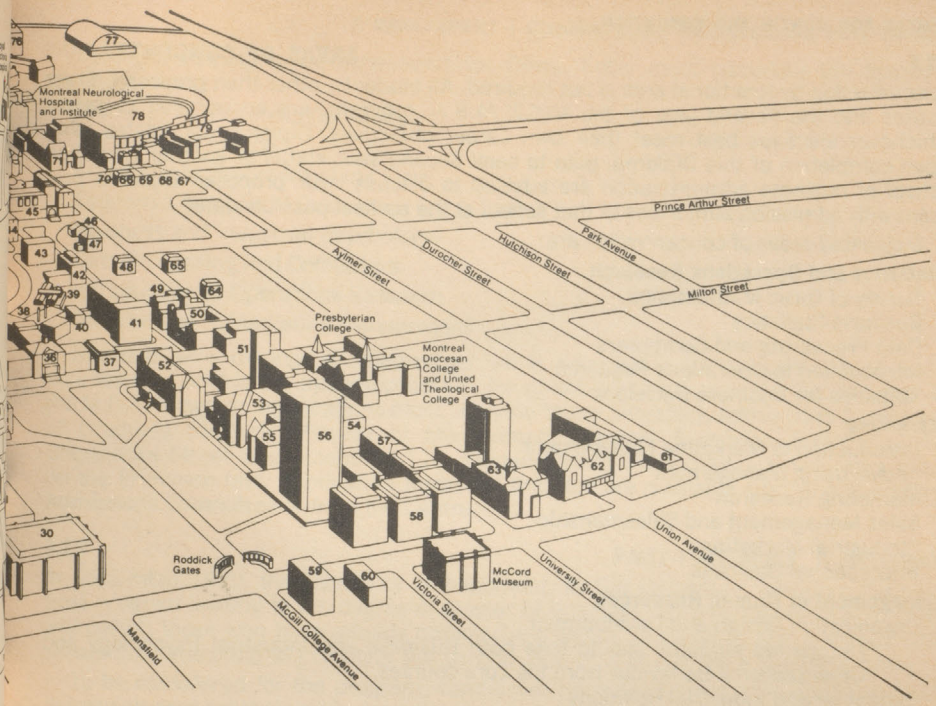
Students who started the program before 1967-68 may qualify for the Diploma under the regulations existing at that time. They are, however, strongly advised to adjust their choice of courses to meet the new requirements.



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Animal Centre, 7
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- Chaplaincy, 64
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- Entrepreneurial Agency, 28
- Post-Graduate Students' Society, 15
- Guidance, 66
- Health, 69
- Placement, 48
- Students' Society, 24
- Tutoring, 66



1 Beatty Hall
2 Graduates' Society
3 Davis House
4 Hosmer House
5 Stewart Biological Sciences
6 Greenhouses
7 McIntyre Medical Sciences
8 Chancellor Day Hall
9 Mental Hygiene Institute
10 Purvis Hall
11 Duggan House
12 Allan Memorial Institute
13 Faculty of Education
14 Hugessen House
15 David Thomson House
16 3511 Peel Street
17 3495/91 Peel Street
18 3487 Peel Street
19 3483 Peel Street
20 3479 Peel Street
21 3475 Peel Street
22 3465 Peel Street
23 3437 Peel Street
24 University Centre
25 Peterson Hall
26 Faculty Club
27 3438 McTavish Street
28 3434 McTavish Street
29 Samuel Bronfman Bldg.
30 McLennan Library
31 Redpath Library
32 Redpath Hall
33 Morrice Hall
34 Stephen Leacock Bldg.
35 Redpath Museum
36 Arts Bldg.
37 Dawson Hall
38 840 McGregor
39 Old Greenhouse
40 Stationery Stores
41 F. Cyril James Bldg.
42 Foster Radiation Laboratory
43 Eaton Electronics Laboratory
44 Donner Bldg.
45 Strathcona Anatomy & Dentistry Bldg.
46 3618 University Street
47 3600 University Street
48 3574 University Street
49 William & Henry Birks Bldg.
50 Wilson Hall
51 McConnell Engineering Bldg.
52 Macdonald Engineering Bldg.
53 Macdonald Chemistry Bldg.
54 Frank Dawson Adams Bldg.
55 Macdonald Physics Bldg.
56 Burnside Hall
57 Pulp & Paper Institute
58 Otto Maass Chemistry Bldg.
59 Strathcona Hall
60 762 Sherbrooke Street W.
61 Women's Athletics
62 Strathcona Music Bldg.
63 Royal Victoria College
64 3521 University Street
65 3587 University Street
66 522 Pine Avenue W.
67 505 Pine Avenue W.
68 509 Pine Avenue W.
69 515/517 Pine Avenue W.
70 527 Pine Avenue W.
71 Pathology Bldg.
72 Douglas Hall
73 Gardner Hall
74 Bishop Mountain Hall
75 Molson Hall
76 McConnell Hall
77 McConnell Winter Stadium
78 Molson Stadium
79 Sir Arthur Currie Memorial Gymnasium

8.2.4 AREAS OF CONCENTRATION

Specialization by functional area is not required. All students, other than proposed direct entries into the Second year of the McGill M.B.A. program, are encouraged to select whichever electives best meet their own career objectives. Diploma candidates who, upon completion of this Diploma, plan to seek Second year status at another Canadian school of business administration are advised to discuss their proposed Diploma program with admission authorities of that school at the earliest possible date.

Suggested areas of concentration are:

Statistics and Operations Research
- Survey of Basic Mathematics
- Business Statistics
- Data Processing and Computers
- Introduction to Operations Research
- Statistics for Business Decisions

Marketing
- Introduction to Marketing Management
- *Advertising Management
- Marketing Research
- Sales Management and Salesmanship
- *Industrial Marketing
- International Business

Management of Human Resources
- Organization Design and Development
  (Interested students should take both Business and Industrial Psychology and Organizational Behaviour from the core courses.)
- Personnel and Industrial Relations

Accounting and Finance
- Managerial Finance
- Public Issues Affecting Business
- Corporation Finance
- Investment Analysis
- International Business

Production and Control
- Industrial Production
- Management of Industrial Research and Development

Business Management
- Introduction to Operations Research
- Industrial Production
- Managerial Finance

Systems Analysis
- Introduction to Systems Innovation
- Systems Innovation Workshop
- Systems III
- *Systems IV
- Introduction to Operations Research
- Data Processing and Computers

*Half course.

Certain electives in the MBA II program are available to Diploma students of advanced standing and with the necessary prerequisites.

8.2.5 DIRECT ENTRY INTO THE SECOND YEAR OF THE McGILL M.B.A. PROGRAM

The Diploma courses that must be taken by those who aspire to direct entry into the Second year of the McGill M.B.A. program are indicated below. It must be emphasized, however, that successful completion of this program does not automatically guarantee admittance. Acceptance is dependent upon the student's overall average in the diploma program, the number of openings and the competition for openings in a given year.

Students wishing to be considered for Direct Entry must complete the following eight courses:

Statistics for Business Decisions
Managerial Finance
Economic Environment of the Firm
Economic Analysis of Business
Business and Industrial Psychology
Data Processing and Computers
Introduction to Operations Research
Introduction to Marketing Management

Students who distinguish themselves while completing these eight Direct Entry courses are considered, upon application, for direct admission into the Second year of the M.B.A. Program. Applications must be made to the Secretary, Admissions Committee of Graduate Students, Faculty of Management, Samuel Bronfman Building, 1001 Sherbrooke Street West, Montreal 110. Students must also obtain a satisfactory score on the Princeton test. Application forms for this test are available from the Secretary, Admissions Committee or from the Centre.

8.2.6 **PART-TIME M.B.A. II PROGRAM**

In September 1972, the Faculty of Management, McGill University, introduced a part-time program leading to the degree of Master of Business Administration. The program will permit those who have already obtained the McGill Diploma in Management, with satisfactory standing, to complete the second year of a M.B.A. on a part-time basis.

To be considered for the program, candidates must have completed the eight compulsory courses (or their equivalent).

The M.B.A. II for part-time students will consist of two required courses, a research paper and four electives. Classes will be scheduled in the evening between 6 p.m. and 10 p.m.

8.2.7 **SUMMER PROGRAM**

A number of "Core" courses will be offered during the summer session to be held each May to July. This factor should be kept in mind by students who wish to plan a program that would allow them to complete the Diploma program as expeditiously as possible.

8.2.8 **CANDIDATES FOR THE DIPLOMA**

Candidates who expect to receive the Diploma at spring Convocation are required to complete application forms, available at the Centre for Continuing Education. The completed forms together with a cheque for $25 made payable to McGill University must reach the Centre by December 15. A late registration fee of $5 is charged after December 15 and up to the final date of January 15.

Candidates who expect to receive the Diploma at fall Convocation must return the completed forms to the Centre together with a cheque for $25 made payable to McGill University by August 1. A late registration fee of $5 is charged after August 1 and up to the final date of August 31.

Students who pay the fee for obtaining the Diploma but fail to meet the graduation requirements do not have to pay again when they become eligible candidates at a subsequent convocation. Another Non-Thesis form, however, is required for submission to the Centre by the dates given above.

To receive the Diploma in absentia a fee of $5 must be paid at the McGill Registrar's office, Administration Building, Main Campus. Please DO NOT include the in absentia fee with the $25 cheque sent to the Centre.

8.2.9 **EXAMINATIONS**

Finals — the weeks of April 15 and 22, 1974.

Supplemental Examination Fee: A fee of $15, payable to McGill University, is charged for each supplemental.

8.2.10 REGISTRATION

Courses commencing in the Fall of 1973.

Registration must be made in person for all courses.

1. Students currently enrolled in the Diploma Program:
   Tuesday, September 4 to Thursday, September 6
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.

   and
   Friday, September 7:
   9:00 a.m. to 2:30 p.m.
2. Students registering for the first time in the Diploma Program must bring proof of University Graduation (or equivalent — see Admission Requirements)
   Monday, September 10 to Wednesday, September 19
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.

   and
   Friday, September 14
   9:00 a.m. to 2:30 p.m.

Courses commencing in January 1974.

Tuesday, December 18 to Thursday, December 20
9:00 a.m. to 2:30 p.m.
5:00 p.m. to 7:00 p.m.

8.2.11 COURSE DESCRIPTIONS

BUSINESS STATISTICS. Two classes of 25 lectures of 2 hours. *Fee:* $115 (includes a nominal fee of $15 for use of the computer during laboratory periods). *Prerequisite:* **1A1-525** or equivalent.

1A1-501. Mr. M. Yalovsky. Mondays at 6 p.m. beginning September 24.

1A1-502. Professor A. D. Teitlebaum. Mondays at 6 p.m. beginning September 24.
Probability theory, descriptive statistics, empirical and theoretical frequency distributions, sampling, estimation and tests of hypothesis, analysis of variance, quality control, regression and correlation analysis, time series. The subject will be developed using only a basic high school algebra background.
An optional tutorial period will be scheduled for one hour before each lecture.

ACCOUNTING — A MANAGEMENT APPROACH. 25 lectures of 2 hours. *Fee:* $100.

1A1-505. Professor A. R. Marshall. Mondays at 6 p.m., beginning September 24.

1A1-506. Professor H. Howson. Wednesdays at 6 p.m., beginning September 26.

1A1-507. Mr. W. Hale. Mondays at 8 p.m., beginning September 24.

1A1-509. Professor R. Laybourn. Thursdays at 6 p.m., beginning September 27.
This course examines the role of accounting both as an external and an internal information system. The stress, however, is primarily on the internal use of accounting data, by management, for planning and control purposes and in the decision-making process. The basic concepts of financial accounting are examined and topics covered include the valuation of resources, the measurement of income, depreciation, and the analysis and interpretation of financial statements. In the planning and control area, topics covered include cost and control concepts, costing systems, budgeting, differential cost analysis and the measurement of performance. Extensive use is made of cases.

1A1-525. SURVEY OF BASIC MATHEMATICS. Professor S. Melamed. 25 lectures of 2 hours. Wednesdays at 6 p.m., beginning September 26. *Fee:* $100.
Introductory Calculus, including limits, functions of one variable, differentiation, integration, partial differentiation, applications; Linear Algebra, including Matrix Algebra, determinants, solutions of simultaneous linear equations.
The first few lectures will be spent in an intensive review of basic mathematics needed for the course, including algebra, graphs, functions, logarithms. The objective of this review is that even students having virtually forgotten all of their school mathematics will be enabled to follow the calculus and linear algebra treatment.
The material covered in this course will be adequate to enable students to follow the usual mathematical applications in business, economics, statistics and operations research.
Text: Draper and Klingman. *Mathematical Analysis: Business and Economic Applications* (Harper and Row).

1A1-528. MARKETING RESEARCH. Mr. R. Gelfand. 25 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. *Fee:* $100. *Prerequisite:* **1A1-635** or equivalent.

Geared to the interests of both practising marketing researchers and marketing management research users. Treatment of technical aspects of research design and practical areas of application to differentiate between good and bad. Emphasis on what specific kinds of research can and cannot do. Oriented towards consumer research, however, application to industrial area is shown.

Specific topics include: Role of research in marketing management, Problem definition, methods of data collection, Questionnaire design, Sampling, Statistics for marketing research, Data tabulation and presentation, Behavioural sciences applied to M.R., "Quantitative" studies, Performance analysis, Depth studies, Applied areas of: Advertising, Seeking market opportunities, Product testing, Brand and Corporate image, Packaging, Brand name, Logo.

1A1-530. SALES MANAGEMENT AND SALESMANSHIP. Mr. L. T. Ghobrial. 25 lectures of 2 hours. Thursdays at 6 p.m., beginning September 27. *Fee:* $100.

An analytical study of the techniques and policies employed in the operation of a sales organization. The approach is from the viewpoint of the sales managers of an enterprise. Extensive use will be made of case materials in considering the problems of recruiting, training, controlling and managing the sales force. Sales appeals, quotas, and sales analysis and forecasting will also be discussed.

Text: Stanton and Buskirk, *Management of the Sales Force* (Irwin).

1A1-535. PUBLIC ISSUES AFFECTING BUSINESS. Mr. John Meyer. 25 lectures of 2 hours. Tuesdays at 8 p.m., beginning September 25. *Fee:* $100.

A guide for middle management on the ways in which government actions influence business activity. The course will examine current issues on money supply, exchange rates, inflation, unemployment, regional development programs, investment incentives and tax allowances, etc. The course will also consider how public opinion and the voices of the various groups influence public policy.

1A1-538. INVESTMENT ANALYSIS. Mr. D. Anderson. 25 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. *Fee:* $115.

This course deals with security analysis and investment techniques, covering the different types and classes of securities. The sources of information, methods of compiling statistics, and assessment of comparative values are discussed, together with portfolio objectives and differing philosophies of investment management. Broad economic trends and international political climates affecting security values are analysed.

1A1-544. INDUSTRIAL PRODUCTION. Professor J. Cherna. 25 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. *Fee:* $100.

An examination of the Production System and its sub-systems. The design of Production Systems (Layout of facilities, Job Design) and Operations Planning and Control constitute the principal topics. Traditional concepts and analytical techniques will be developed concurrently.

Text: Buffa, E. S. *Modern Production Management,* 3rd Edition (Wiley).

1A1-548. PERSONNEL AND INDUSTRIAL RELATIONS. Mr. R. J. Charpentier and Mr. Casper Bloom. 25 lectures of 2 hours. Wednesdays at 6 p.m., beginning September 26. *Fee:* $100.

This course will be concerned with the general area of industrial relations, which includes an examination of the personnel function in modern industry. The use of behavioural science in industry will be discussed and analysed. Trade unionism and its functions in the United States and Canada will be examined as well as the nature of industrial conflict, and the role of the state in law and dispute settlement machinery.

Texts: Strauss and Sayles, *Personnel, The Human Problems of Management* (Prentice Hall); *Quebec Labour Code.*

1A1-551. ORGANIZATION DESIGN AND DEVELOPMENT. Professor T. E. Hawkins. 25 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. *Fee:* $100.

The course will explore ways and means of developing effective organizations in times of change. This task is of increasing importance to the manager or the administrator. A systems approach will be outlined.

Rapid developments in products (services), process, distribution channels and markets, as well as social, political, technical and economic developments are requiring constant change in many organizations.

Various theories of organization development will be presented in addition to discussions of the more pragmatic procedures used by practitioners. Major topics will be: indicators of need for change, clarification of mission and tasks, underlying assumptions about people, coping with the environment, bringing about change.

Text: A wide range of reprints from managerial publications.

1A1-558. INTRODUCTION TO SYSTEMS INNOVATION. Mr. M. Collins and Mr. R. Kirby. 25 lectures of 2 hours. Tuesdays at 6 p.m., beginning September 25. (In cooperation with the Association for Systems Management). *Fee:* $100.

This course provides a comprehensive treatment of the steps of systems innovation from problem definition through to the implemented solution. A novel grid structure is employed to emphasize the systematic aspects of the innovative process. A full range of information systems techniques such as fact finding, flow charting and documentation is introduced as they are required during the innovative process, together with methods of project planning authorization, management and control.

Text: To be provided by the lecturers.

1A1-560. SYSTEMS III. (Elements of Management Science). Mr. M. Litwin. 25 lectures of 2 hours. Tuesdays at 8 p.m., beginning September 25. *Fee:* $100.

To explore the use of modern quantitative methods in the analysis of management and business problems. Topics include: the scientific method, systems and models in operations research, linear programming, optimal distribution, decision theory, critical path method, inventory control, simulation and queueing theory.

Texts: Beer, S., *Management Science* (Doubleday); Schuchman, A., *Scientific Decision Making in Business* (Holt Rinehart); Battersby, A., *Mathematics in Management* (Penguin).

1C1-561. SYSTEMS V. (Internal Controls and Systems Design). Mr. Colin Campbell. 15 lectures of 2 hours. Wednesdays at 8 p.m., beginning January 9. *Fee:* $60.

This course is designed to promote an understanding of the need to incorporate control features into the design of an electronic data processing system and a knowledge of the control techniques available.

It covers procedures for evaluating the controls which have been incorporated into a specific system and for determining whether such controls are adequate. It includes discussion of the physical protection of data software and hardware.

Its purpose is to provide management, accounting, systems and data processing personnel with an in-depth analysis of internal control techniques and computer system protection.

Texts: Galley, T. A. *The Association for Systems Management Manual on Internal Controls and Systems Design and Computer Protection* (Association for Systems Management).

1A1-563. INTERNATIONAL BUSINESS. Professor R. W. Wright. 25 lectures of 2 hours. Mondays at 6 p.m., beginning September 24. *Fee:* $100.

This course seeks to develop conceptual and analytic skills necessary to formulate feasible and effective management policies in multinational environments. It examines both levels of the international businessman's world: the environment (economic, political, and social) within which he will be operating, and the new dimensions of his traditional management operations. A combination of lectures, discussions, and case studies will be used.

Text: Endel Kolde. *International Business Enterprise* (Second Edition) (Prentice Hall, 1973).

1A1-564. MANAGEMENT OF INDUSTRIAL RESEARCH AND DEVELOPMENT. Mr. C. F. B. Stevens. 25 lectures of 2 hours. Thursdays at 6 p.m., beginning September 7. *Fee:* $100.

Role of innovation in supporting the worth and earnings of an enterprise; relation of R & D to innovation; stimulating R & D ideas; using external and in-house capabilities; searching the art; planning, costing, and controlling projects; providing funds, personnel, space, equipment, library, and ancillary services; reporting; patenting; large-scale evaluation; licensing; and technological forecasting.

STATISTICS FOR BUSINESS DECISIONS. 25 lectures of 2 hours. *Fee:* $115 (includes $15 for use of the computer during laboratory periods). *Prerequisite:* **1A1-501** or equivalent (**1A1-525** is not a prerequisite.)

1A1-601. Professor G. A. Whitmore. Thursdays at 8 p.m., beginning September 27.

1A1-602. Professor G. Cavadias. Thursdays at 6 p.m., beginning September 27.

Bernoulli and Poisson processes; Bayesian inference; decision theory; regression and correlation analysis; sampling theory; experimental design and analysis of variance; non-parametric methods; index numbers; classical time series analysis and exponential smoothing. Several exercises using statistical computer programs available on the McGill RAX system are assigned.

Text: Hays, William L. and Robert L. Winkler, *Statistics: Probability, Inference and Decision* (Holt, Rinehart and Winston).

MANAGERIAL FINANCE. 25 lectures of 2 hours. *Fee:* $100. *Prerequisite:* **1A1-505** or equivalent.

1A1-605. Professor R. W. Wright. Mondays at 8 p.m., beginning September 24.

1A1-606. Mr. P. Heitner. Tuesdays at 6 p.m., beginning September 25.

1A1-607. Mr. P. Heitner. Tuesdays at 8 p.m., beginning September 26.

This course emphasizes the latest developments in the theory of finance and the use of analytical tools and decision-theoretic concepts in solving financial management problems. Topics covered include capital budgeting, cost of capital, capital structure, dividend policy, financing, asset management, asset prices and capital market equilibrium.

Texts: Findlay and Williams, *Integrated Analysis for Managerial Finance* (Prentice Hall); Van Horne, *Financial Management and Policy,* 2nd edition (Prentice Hall) 1971.

ECONOMIC ANALYSIS OF BUSINESS. 25 lectures of 2 hours. *Fee:* $100.

1A1-610. Professor L. Gordon. Wednesdays at 8 p.m., beginning September 26.

1A1-611. Professor G. Smith. Wednesdays at 6 p.m., beginning September 26.

The economic theory of the firm, or microeconomics, and its application to managerial analysis and decision-making. Topics covered include market theory, production theory, pricing, costs, demand analysis, and market forecasting for operations planning.

Texts: Spencer. *Managerial Economics,* 3rd Edition (Irwin). Ferguson, C. *Microeconomic Theory* (Irwin).

BUSINESS AND INDUSTRIAL PSYCHOLOGY. (Behavioural Science in Management). 25 lectures of 2 hours. *Fee:* $100.

1A1-614. Dr. H. Kee. Thursdays at 6 p.m., beginning September 27.

1A1-615. Professor R. Kanungo. Thursdays at 6 p.m., beginning September 27.

1A1-616. Professor P. Khandwalla. Wednesdays at 6 p.m., beginning September 26.

1A1-617. Professor P. Khandwalla. Wednesdays at 8 p.m., beginning September 26.

1A1-618. Dr. H. Kee. Tuesdays at 7:30 p.m., beginning September 25 at Macdonald College.

The course will emphasize the essentials of social psychology, such as motivation, perception, learning, cognition, conflict, attitudes and attitude change, group dynamics, organizational dynamics and research methodology.

It will explore different organizational perspectives and problems and the implications for society. It will draw upon psychology mainly, but also some sociology and a little economics. It will emphasize participatory learning, group projects, if possible, design of experiments, and independent thinking and research.

ECONOMIC DEVELOPMENT OF THE FIRM. 25 lectures of 2 hours. *Fee:* $100.

1A1-620. Professor D. E. Armstrong. Tuesdays at 6 p.m., beginning September 25.

This course will be conventional with lectures, discussions, etc. Students are strongly urged to attend from 5:00 — 6:00 p.m. or 8:00 — 9 p.m. but not both, beginning with the second lecture.

1L1-622. Mr. A. Hochstein. Wednesdays at 7:30 p.m., beginning September 26 at Macdonald College.

The first part of the course constitutes an intensive review of Microeconomic analysis; demand theory cost and supply, market structure and the role of the firm in society. This is followed by microeconomic analysis; the basic concepts of rational income and GNP: theories of income determination and the rate of interest: money, credit and the Canadian banking and financial system; business cycle theory; the role of monetary and fiscal policy; the labour sector and methods of forecasting. The final segment of the course includes a brief examination of the regulation of business, taxation, combines legislation and international trade. The course is intended to provide a sound understanding of basic economic principles and an appreciation of how these principles apply to the business firm.

1A1-625. DATA PROCESSING AND COMPUTERS. Professor G. Ratzer. 25 lectures of 2 hours, plus laboratory periods. Wednesdays at 6 p.m., beginning September 26. *Fee:* $150 (includes $50 for computer use). *Prerequisite:* 1A1-501 or equivalent.

Introduction to the application of electronic computers in business and industry. The course is divided into two sections: (1) Computer concepts and programming systems. Instruction will be given in the use of a generalized programming language; (2) Current computer applications and the future potentialities of computers. Students will be assigned problems involving the use of the computer.

Texts: Ratzer, G. A., *A Fortran Course* (Holt Rinehart); *Introduction to P L 1 Programming* (Harper).

INTRODUCTION TO OPERATIONS RESEARCH. 25 lectures of 2 hours. *Fee:* $100.
Prerequisites: **1A1-525** and **1A1-501** or equivalent.

1A1-630. Professor R. Loulou. Mondays at 6 p.m., beginning September 24.

1A1-631. Lecturer to be announced. Tuesdays at 8 p.m., beginning September 25.

A course designed to introduce the principal models and methods of operations research, emphasizing both assumptions and practical applications. Techniques include mathematical methods of optimization, linear programming, game theory, queueing theory, inventory control, adaptive forecasting, simulation and Monte Carlo.

Text: Hillier & Lieberman. *Introduction to Operations Research* (Holden-Day).

INTRODUCTION TO MARKETING MANAGEMENT. 25 lectures of 2 hours. *Fee:* $100.

1A1-635. Mr. G. Oliver. Mondays at 8 p.m., beginning September 24.

1A1-636. Mr. R. Schelling. Wednesdays at 8 p.m., beginning September 26.

1A1-637. Tuesdays at 6 p.m., beginning September 25.

A combination of lectures, and case studies involving team-work will be used. Lectures and text material will cover the marketing concept, law, buyer, behaviour, product-policy, advertising, pricing, distribution, research, and marketing planning. Canadian content will be used where appropriate. Case studies at weekly intervals will provide opportunities for involvement in problem-solving.

Texts: 1A1-635 Kotler, P. E. *Marketing Management Analysis - Planning and Control* (Prentice Hall). *1A1-636* Stanton. *Fundamentals of Marketing*, 3rd Edition (Prentice Hall). Westing Albaum. *Modern Marketing Thought* (Macmillan).

1A1-639. INTRODUCTION AU MARKETING. Mr. P. Filiatrault. 25 lectures of 2 hours. Wednesdays at 6 p.m., beginning September 26. *Fee:* $100.

L'accent est mis sur les problèmes administratifs et les méthodes analytiques. Après une étude des facteurs extérieurs à l'organisation, les problèmes de prévision, de planification, de création de nouveaux produits, de détermination des prix, de publicité, de canaux de distribution et de l'organisation des ventes sont étudiés.

Le cours se termine par une brève revue des méthodes quantitatives et des techniques de contrôle disponibles.

Références: Philip Kotler, *Marketing Management Analysis, Planning and Control*, 2nd Edition (Prentice Hall); Biscayart, M., *Le Marketing, nouvelle science de la vente* (Bibliothèque Marabout Service); Westing Albaum, *Modern Marketing Thought* (Macmillan).

8.3 DIPLOMA OF THE INSTITUTE OF CHARTERED ACCOUNTANTS OF QUEBEC

The Institute of Chartered Accountants of Quebec conducts its own qualifying examinations but requires that candidates must have previously passed or been granted exemption from the courses as set out below. Students who wish to follow this program must also register with the Institute.

Details concerning registration, service requirements and examinations may be obtained from:

The Institute of Chartered Accountants of Quebec
630 Lagauchetiere Street West
Montreal 101 (861-1891)

8.3.1. C.A. COURSES 1973-74

Accounting IA
Accounting II
Accounting III
Accounting IV
Managerial Accounting I
Managerial Accounting II
Auditing I
Auditing II
Taxation I
Taxation II
Finance
Computers I
Computers II
Mathematics and Statistics II
Mathematics and Statistics III
Economics I
Economics II
Law I
Law II
Management I
Management II

8.3.2 REGISTRATION

ALL STUDENTS MUST REGISTER IN PERSON.

COURSES COMMENCING IN THE FALL OF 1973.

1) Students in the final two years of their program:
   Monday, August 13 — Thursday, August 16
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, August 17
   9:00 a.m. to 2:30 p.m.
2) All other students:
   Monday, August 20 — Thursday, August 23
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, August 24
   9:00 a.m. to 2:30 p.m.

COURSES COMMENCING IN JANUARY 1974.

1) Students in the final year of their program:
   Tuesday, December 18 — Thursday, December 20
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
2) All other students:
   Wednesday, January 2 — Thursday, January 3
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, January 4
   9:00 a.m. to 2:30 p.m.

8.3.3 EXAMINATIONS

Examination dates:

Sept. — Dec. 1973 courses —
10 — 20 Dec.

Jan. — Apr. 1974 courses —
1 — 10 May

Students who fail to pass a summer course must write the final examination in that course held in December as their supplemental.

8.3.4 COURSE DESCRIPTIONS

NOTES:

i) The courses marked with an asterisk will be repeated in a fifteen week period commencing mid-January 1974.

ii) Buildings for these courses are subject to change for January courses. Check at time of registration in December or January.

1B5-100. ACCOUNTING IA. 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $60.00.
Syllabus: Introduction to accounting principles and concepts; measurement of accounting income; preparation of financial statements; balance sheet classifications; depreciation; manufacturing statements.

***1B5-200. ACCOUNTING II.** 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Arts Building. *Fee:* $60.00.
Prerequisite: **1B5-100 Accounting IA** or equivalent.
Syllabus: Development of accounting theory; valuation and measurement of income; financial statement presentation; Canada Corporations Act and CICA recommendations; current issues and developments. Current assets and liabilities, working capital and flow of funds; long lived assets; long term debt: shareholders' equity. Instalment sales; consignments; partnerships.

***1B5-300. ACCOUNTING III.** 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $60.00. *Prerequisite:* **1B5-200 Accounting II** or equivalent.
Syllabus: The underlying concepts and accounting treatment of business combinations, consolidations, pooling of interests, professional pronouncements and current controversies. Reorganizations; valuation of business enterprises; branches — domestic and foreign.

***1B5-400. ACCOUNTING IV.** 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Leacock Building. *Fee:* $60.00. *Prerequisites:* **1B5-300 Accounting III** and **1B5-125 Finance** or equivalent.
Syllabus: Review and integration of previous courses; specialized accounting including fund accounting; specialized types of operations including banks; insurance companies, municipalities; accounting treatment of price level changes; contemporary financial accounting issues and developments.

***1B5-110. MANAGERIAL ACCOUNTING I.** 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $60.00. *Prerequisite:* **1B5-200 Accounting II** or equivalent.
Syllabus: Introduction to accounting for management. Elements of cost; job order and process cost systems; budgeting; standard costs and analysis of variances; cost/volume/profit relationships; variable costing; relevant costs.

***1B5-210. MANAGERIAL ACCOUNTING II.** 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Bronfman Building. *Fee:* $60.00. *Prerequisites:* **1B5-110 Managerial Accounting I** and **1B5-125 Finance** or equivalent.
Syllabus: A case method course emphasizing written and oral analyses of management control system problems. Subtopics include the identification of the key success factors of a business, the selection of suitable responsibility centres, transfer pricing, and the management control system as means of motivating and evaluating managers. Special emphasis will be placed on the use of logical and orderly analytical approaches to solving management control problems.

***1B5-115. AUDITING I.** 15 lectures of 2 hours each. Mondays at 6 p.m., beginning August 27. Arts Building. *Fee:* $60.00. *Prerequisite:* **1B5-200 Accounting II** or equivalent.
Syllabus: Nature and purpose of auditing; appointment, remuneration, powers, duties and responsibilities of an auditor; internal control; audit programs; financial statement presentation; procedures for verification of items in financial statements; audit reports.

***1B5-215. AUDITING II.** 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $60.00. *Prerequisites:* **1B5-115 Auditing I, 1B5-300 Accounting III** and **1B5-245 Law II.**
Syllabus: Auditing standards; auditor's legal rights and responsibilities; problems relating to: incorporated businesses, consolidated statements, prospectuses; events subsequent to balance sheet date; analytical, operational and management auditing; audits requiring special considerations; investigations and special reports; current developments in auditing principles, practices and techniques.

***1B5-120. TAXATION I.** 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Arts Building. *Fee:* $60.00. *Prerequisite:* **1B5-200 Accounting II** or equivalent.
Syllabus: Introduction to principles of taxation, federal and provincial; administrative provisions; meaning and computation of taxable income; computation of personal tax and allowable deductions; capital gains; partnerships; trusts.

***1B5-220. TAXATION II.** 15 lectures of 2 hours each. Mondays at 6 p.m., beginning August 27. Arts Building. *Fee:* $60.00. *Prerequisites:* **1B5-120 Taxation I,** and **1B5-300 Accounting III** or equivalent.
Syllabus: Federal and provincial corporate taxation; non-residents and international; deferred compensation; corporate distributions; special cases; federal and provincial sales taxes.

1B5-125. FINANCE. 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $60.00. *Prerequisite:* **1B5-200 Accounting II** or equivalent.
Syllabus: Interpretation and analysis of financial statements; financial forecasting; management of resources; capital budgeting; alternative methods of financing; valuation of business enterprises.

***1B5-130. COMPUTERS I.** 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Arts Building. *Fee:* $75.00. This includes a nominal fee of $15.00 for the use of computer and terminals.
Syllabus: An introduction to fundamental concepts of using a computer and components of a computer system; computer programming and remote terminals; business information processing.

***1B5-230. COMPUTERS II.** 15 lectures of 2 hours each. Wednesdays or Thursdays at 6 p.m., beginning August 29 or 30. Arts Building. *Fee:* $60.00. *Prerequisites:* **1B5-130 Computers I,** and **Auditing I** or equivalent.

Syllabus: EDP controls; auditing in EDP environment; special audit problems; feasibility studies and systems conversion; introduction to system design and analysis; case studies in auditing and systems design.

***3B1-721. MATHEMATICS & STATISTICS II.** 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $60.00. *Prerequisite:* **Mathematics I** or recent equivalent.

Syllabus: Simple and compound interest; equated time; equation of payments; annuities certain; sinking funds; bonds; amortization tables.

1C5-335. MATHEMATICS & STATISTICS III. 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning January 9. Arts Building. *Fee:* $60.00. *Prerequisite:* **Mathematics and Statistics II** or equivalent.

Syllabus: Statistics in business management; probability; statistical populations; principles of sampling; statistical estimation; hypothesis testing and the decision making aspects of statistics; correlation and regression; time series. Introduction to the basic concepts of decision theory, linear programming and simulation.

3B1-911. ECONOMICS I. 15 lectures of 2 hours each. Mondays at 8 p.m., beginning August 27. Leacock Building. *Fee:* $60.00.

Syllabus: Introduction to the basic forces at work in our economic system; the concepts of national output and income; aggregate employment and the general level of prices; the role of money and the banking system; fiscal and monetary policies; international economics; economic growth and development.

3C1-921. ECONOMICS II. 15 lectures of 2 hours each. Mondays at 8 p.m., beginning January 7. Leacock Building. *Fee:* $60.00. *Prerequisite:* **Economics I.**

Syllabus: Economic analysis of the firm, its environment and behaviour; price-production policies; market behaviour and performance under varying conditions of competition and monopoly; application of micro-economic theory to economic problems of the firm in the context of managerial decision making.

***3B1-811. LAW I.** 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Leacock Building. *Fee:* $60.00.

Syllabus: Sources and administration of law; the Canadian Constitution and the division of powers; the Quebec Civil Code comprising the law of persons, the law of property, obligations, contracts, sale, lease and hire, mandate, suretyship, privileges, hypothecs and prescription.

***1B5-245. LAW II.** 15 lectures of 2 hours each. Mondays or Thursdays at 8 p.m., beginning August 27 and 30. Arts Building. *Fee:* $60.00. *Prerequisites:* **3B1-811 Law I** and **1B5-115 Auditing I,** or equivalent.

Syllabus: Canada Corporations Act; Quebec Companies Act; bankruptcy and liquidations; executorship, negotiable instruments.

***1B5-150. MANAGEMENT I.** 15 lectures of 2 hours each. Mondays at 8 p.m., beginning August 27. Stephen Leacock Building. *Fee:* $60.00.

Syllabus: The use of behavioural sciences in analysing individual and group behaviour within the organization; human relations; internal structures; authority; learning; motivation; conflict; innovation; communications. Application of these theories and concepts to improve managerial effectiveness.

***1B5-250. MANAGEMENT II.** 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Bronfman Building. *Fee:* $60.00. *Prerequisites:* **1B5-150 Management I, 1B5-125 Finance,** and **1B5-110 Managerial Accounting I** or equivalent.

Syllabus: This is an integrating course which examines the role of top management in the formulation and administration of policy. The management process: plan, organize, staff, direct and control. Introduction to the functional areas of business. A computerized business game will be used to demonstrate the importance of problem analysis, formation of policies and decision making in a dynamic situation. Development of written and oral presentations.

8.3.5 C.A. COURSES 1973-74 TIMETABLE

MONDAYS —

6-8 p.m. — Auditing I
— Taxation II

8-10 p.m. — Economics I (September only)
— Economics II (January only)
— Law II
— Management I

TUESDAYS —
6-8 p.m. — Accounting II
— Managerial Accounting II
— Taxation I
— Computers I
— Management II

WEDNESDAYS —
6-8 p.m. — Accounting III
— Auditing II
— Computers II
— Mathematics and Statistics II
— Mathematics and Statistics III (January only)

THURSDAYS —
6-8 p.m. — Accounting IA (September only)
— Accounting IV
— Managerial Accounting I
— Finance (September only)
— Computers II
— Law I
8-10 p.m. — Law II

8.4 PROFESSIONAL DEVELOPMENT COURSES

Courses presented in this area have been selected on the basis of current needs and are directly related to the specific interests and desires of the business community. They bring to today's executives and management personnel a means of up-dating themselves through a professional approach to the latest developments and thinking in their respective fields.

†**1B9-500. FINANCIAL ANALYSIS FOR MANAGEMENT.** 10 lectures of 2½ hours each. Mondays at 6 p.m., beginning October 15. *Fee:* $100.00.

The course, designed for the non-financial executive, will deal with the principles, practices and techniques of finance and accounting as they affect general business operations. Participants will learn the fundamentals of financial statements, operating ratios, funds and cash flows, break-even analysis, budgeting and profit planning, pro forma projections and other vital concepts of finance. They will be described and discussed through the use of case studies, in terms that are applicable to everyday practical usage in the business world, enabling participants to make more effective business decisions.

†**1B9-520. TAX REFORM.** 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $60.00. *Prerequisite:* A working knowledge of the previous tax acts.

This is a special course on Tax Reform. It assumes a prior knowledge of taxation and will therefore concentrate only on those areas — both personal and corporate — that have changed as a result of the Tax Reform legislation. The course is aimed at accountants in public practice and in industry, who are required to have a reasonable understanding of taxation and its implications. This course cannot be considered as a training for tax specialists, nor does it form part of a regular program of continuing education.

†These courses will also be offered in January 1974 if warranted by demand.

9 MANAGEMENT — UNDERGRADUATE AND CERTIFICATE PROGRAMS

Associate Director — Professor E. BURNETT Telephone: 392-4904

9.1. DESCRIPTION OF SECTION
9.1.1 List of Awards and Cooperating Organizations
9.1.2 Bachelor of Commerce for Part-Time Students
9.1.3 Registration
9.1.4 General Instructions
9.1.4.1 Examinations
9.1.4.1.1 Grading
9.1.4.1.2 Examination Dates
9.1.4.2 Libraries
9.2 LIST OF PROGRAMS
9.2.1 General Requirements
9.2.2 Requirements for Certificates and Diplomas
9.3 DESCRIPTIONS OF COURSES OFFERED
9.4.1 Course List by Subject
9.4.2 Course List by Program
9.4.3 Course List by evening and time

9.1 DESCRIPTION OF SECTION

The undergraduate and certificate programs offered by this section of the Centre for Continuing Education are designed for High School graduates and Mature students of high calibre and educational promise. They will also be of interest to a diverse group of individuals who already have advanced educational qualifications but who are seeking to develop their career in the work-world especially the Management sector. The courses are meant to meet individual needs as flexibly as possible. Students should explore the offerings of the whole Centre. Although the courses are generally offered in programs leading to Diplomas and Certificates, any student may register for an individual course provided he meets the stated prerequisites.

9.1.1 AWARDS AND COOPERATING ORGANIZATIONS

This section of the Centre offers courses leading to the following Certificates and Diplomas:

McGill Certificates in Management
- Administration
- Appraisal of Real Estate
- Banking
- Insurance Brokerage
- Marketing
- Systems Design
- Transportation

In addition, programs of courses for external Diplomas and Certificates are offered in cooperation with the following organizations:

- Administrative Management Society
- Appraisal Institute of Canada
- Canadian Institute of Management
- Certified General Accountants Association of the Province of Quebec

Chartered Institute of Secretaries
Institute of Canadian Bankers
Insurance Brokers' Association of the Province of Quebec
Society of Industrial Accountants of Quebec

9.1.2 BACHELOR OF COMMERCE FOR PART-TIME STUDENTS

Many of the courses described in this section carry credit towards the Bachelor of Commerce Degree for part-time students offered by the Faculty of Management. Course credits are indicated in the course description. In order to gain credit by the McGill Faculty of Management a student must be admitted to the Bachelor of Commerce Degree Program for part-time students. Further information on the regulations governing admission may be obtained from:

Miss B. E. Martin
Faculty of Management
McGill University
P.O. Box 6070
Montreal 101, Quebec

N.B. Students should apply in December 1973 if they wish to be admitted to the B.Com. Program for part-time students as of January 1974.

9.1.3 REGISTRATION

ALL STUDENTS MUST REGISTER IN PERSON.

9.1.3.1 Courses commencing in the Fall of 1973

1) Students in the final two years of their program:
   Monday, August 13 — Thursday, August 16
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, August 17
   9:00 a.m. to 2:30 p.m.

2) All other students:
   Monday, August 20 — Thursday, August 23
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, August 24
   9:00 a.m. to 2:30 p.m.

9.1.3.2 Courses commencing in January 1974

1) Students in the final year of their program:
   Tuesday, December 18 — Thursday, December 20
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.

2) All other students:
   Wednesday, January 2 — Thursday, January 3
   9:00 a.m. to 2:30 p.m.
   5:00 p.m. to 7:00 p.m.
   and
   Friday, January 4
   9:00 a.m. to 2:30 p.m.

9.1.3.3 **Courses commencing in Summer 1974**

Monday, April 29 — Thursday, May 2
9:00 a.m. to 2:30 p.m.
5:00 p.m. to 7:00 p.m.
and
Friday, May 3
9:00 a.m. to 2:30 p.m.

IMPORTANT:

i) Students must adhere to the above registration dates. A charge of $5.00 per course will be imposed for late registration.

ii) As classes are limited in size, registration will be accepted on a first come first served basis.

For transfers and refunds, etc., see GENERAL INFORMATION, Sections 3.2; 3.3; 3.4.

9.1.4 **GENERAL INSTRUCTIONS**

9.1.4.1 **Examinations**

An examination is held at the end of each course unless specifically excepted. Candidates who fail to pass the final examination in a course may be permitted to write a supplemental examination in July. To qualify for supplemental privileges, students must first write the final examination in the course and obtain at least 40%. Candidates who fail to pass the supplemental examination will be required to repeat the course.

Students will receive written confirmation of their examination or course results after each term. As the results of each course become available, they will be posted on the Notice Board in Strathcona Hall by STUDENT NUMBER. Results can NOT be obtained by telephone.

9.1.4.1.1 **Grading System**

The Centre uses the grading system common to the university. Unless otherwise noted in the description of an individual course, grading will be as follows:

A — 80 — 100%
B — 65 — 79%
C — 55 — 64%
D — 45 — 54%
F — Below 45%.

For all Diplomas and Certificates in this section a 'C' grade or higher is required for credit.

9.1.4.1.2 **Examination Dates**

Sept. to Dec. Courses 1973 — 10 - 20 Dec.
Jan. to Apr. Courses 1974 — 29 Apr. - 10 May
Sept. 1973 - April 1974 Courses — 22 Apr. - 10 May

9.1.4.2 **Libraries**

Full library privileges are available to all registered students at the following locations:

i) The Management Library
Samuel Bronfman Building
1001 Sherbrooke Street West

ii) The McLennan Library
McGill campus

A library card may be obtained from the library after the second lecture upon presentation of the student card.

9.2 LIST OF PROGRAMS

Seven McGill Certificate programs and 10 external programs in management are available to those who wish to prepare themselves for managerial positions and further their education.

McGill Certificate in Management (Administration) (9.2.2.1)
Certificate of the Administrative Management Society (9.2.2.2)
McGill Certificate in Management (Appraisal of Real Estate) (9.2.2.3)
Accredited Appraiser of the Canadian Institute (A.A.C.I.) (9.2.2.4)
McGill Certificate in Management (Banking) (9.2.2.5)
Diploma of the Institute of Canadian Bankers (I.C.B.) (9.2.2.6)
McGill Certificate in Management (Insurance Brokerage) (9.2.2.7)
Certificate of the Insurance Brokers' Association (C.I.B.) (9.2.2.8)
McGill Certificate in Management (Marketing) (9.2.2.9)
McGill Certificate in Management (Systems Design) (9.2.2.10)
McGill Certificate in Management (Transportation) (9.2.2.11)
Cesrtificate in Industrial Management (C.I.M.) (9.2.2.12)
Diploma of the Society of Industrial Accountants of Quebec (R.I.A.) (9.2.2.13)
Diploma of the Certified General Accountants Association of the Province of Quebec (C.G.A.) (9.2.2.14)
Diploma of the Chartered Institute of Secretaries in Canada (9.2.2.15)
Travel Counselling. (In cooperation with the American Society of Travel Agents. See course description no. 14) (9.2.2.16)
Practical course in Public Relations. (In cooperation with the Canadian Public Relations Society. See course description no. 15) (9.2.2.17)

9.2.1 GENERAL REQUIREMENTS

1) Candidates must be high school graduates or provide evidence of equivalent education.
2) Membership in the Association cooperating with McGill in offering some of these programs is recommended for students wishing to obtain the "certificate" offered by the Association. For the McGill Certificate in Management, a minimum mark of 55% in each subject is required.
3) All programs must be completed within a period of seven years.
4) For all McGill Certificates in Management 8 full courses (48 credits) must be completed.
5) Students who plan to obtain a Certificate in Management in the spring of 1974 must apply in writing to the Centre for Continuing Education. The application should list the courses completed, the year and the marks obtained. Please state which certificate the application is made for. Enclose a cheque payable to McGill University for $5.

   Applications must reach the Centre before February 1, 1974. Applications received after that date and up to the final date of March 15 must be accompanied by a cheque for $10.

   Certificates will be awarded in the spring of each year at a special convocation for evening students.

9.2.2 REQUIREMENTS FOR CERTIFICATES AND DIPLOMAS

9.2.2.1 McGill Certificate in Management (ADMINISTRATION)

Students may qualify for the McGill Certificate by completing eight courses (48 credits) from those listed below.

9.2.2.2 Certificate of the Administrative Management Society

To receive recognition from A.M.S. as a Certified Administrative Manager (C.A.M.), students must complete a total of ten courses from the list below and then write the Society's qualifying examination.

The Society offers the annual A.M.S. prize to the student graduating with the highest standing.

Special Requirements

1) A minimum of two years business experience unless specifically exempted.
2) Membership in the Associated Office Administrators is recommended. (For particulars write: Administrative Management Society, P.O. Box 131, Station B, Montreal, P.Q.).

List of Courses

Accounting — A Management Approach (1)
Organizational Behaviour (2)
Communications (3)
Administration Procedures (4)
Introduction to E.D.P. (5)
Introduction to Systems Innovation (6)
Introduction to Marketing (7)
Airport Management (11)
Principles of Economics (16)
Business Statistics (Math and Statistics III and IV) (34) (35)
Financial Analysis & Business Management (80)

9.2.2.3 McGill Certificate in Management (APPRAISAL OF REAL ESTATE)

Students may qualify for the McGill Certificate by completing three core courses and five options (a total of 48 credits) from those listed below.

9.2.2.4 Certificate of the Appraisal Institute of Canada

The title "Certified Residential Appraiser" (C.R.A.) may be awarded to students who successfully complete Appraisal I and II, and who have satisfied the membership requirements of the Institute.

The designation *A.A.C.I. (Accredited Appraiser of the Canadian Institute)* will be awarded to students who register with the local chapter and follow the three year course. Information on these requirements may be obtained from:

Mr. David Hughes
The Appraisal Institute of Canada
245 Victoria Avenue
Montreal 215, Quebec
Tel.: 931-2568

List of Courses

Business Communications (Take Communications (3) or Written Communications in Business (13)).
Introduction to Electronic Data Processing (5)
Retail Locations (8)
Appraisal of Real Estate I (73)
Appraisal of Real Estate II (74)
Appraisal of Real Estate III (75)
Economics for Real Estate Appraisers (76)
Land Economics (77)
Building Construction and Cost Estimating (Not offered)
Land Law (Not offered)

9.2.2.5 McGill Certificate in Management (BANKING)

Students may qualify for the McGill Certificate by completing 7 core courses and *1* option (a total of 48 credits) from the courses listed below.

9.2.2.6 Diplomas of the Institute of Canadian Bankers

This program is designed specifically for staff members of Canadian banks. Its purpose

is to provide formal education for men and women who wish to prepare themselves for responsible positions in banking. Individual courses may also be taken by anyone interested who has a junior matriculation certificate.

The program has been revised, the titles of some courses have been changed and some electives will be offered. Although I.C.B. will recognize many electives at universities across Canada, McGill will not offer all these electives in 1973-74.

Letter of Accomplishment

Fundamentals of Accounting	(Core Entry) (40)
Business Administration	(Core Entry) (46)

Associate of I.C.B.

Communications	(Core) (42)
Economics	(Core) (48)
Financial Accounting	(Core) (41)
Option	

Fellow of I.C.B.

Marketing (Core course)	(7)
Option	
Option	
Business Strategy (synthesis and last course)	(Core) (45)

Options may be chosen from:

Business Finance (43)
Management Accounting (Managerial Accounting I) (21)
Taxation (26)
Management Information Systems (Introduction to EDP) (5)
Investment Management (Not offered)
Organizational Behaviour (2)
Employee Relations (Industrial Relations & Labour Law) (12)
Personnel Management (Not offered)
Money and Banking (49)
Intermediate Economics (Not offered)
Contemporary Economic Issues (Not offered)
International Economics (International Banking) (44)
Business Law (47)
International Business (Not offered)
Business and Government (Not offered)
Consumer Behaviour (Marketing Research, Consumer Survey) (60)
Promotion Management (Advertising Management) (10)
Business Statistics (Mathematics I and Math/Stats. II) (32 & 33)
Computer Concepts & Applications (Introduction to Systems Innovation) (6)
Operations Research (Systems III, Introduction to Management Sciences) (82)

9.2.2.7 McGill Certificate in Management (INSURANCE BROKERAGE)

Students may qualify for the McGill Certificate by completing 4 core courses and 4 options from those listed below.

9.2.2.8 Certificate of the Insurance Brokers' Association

The title Certified Insurance Broker (C.I.B.) may be awarded to students who successfully complete the requirements of this association.

Further information can be obtained from:
The Insurance Brokers' Association of the Province of Quebec
550 Sherbrooke St. W.
Suite 1570
Montreal 111, Quebec (Tel. 842-2591)

Core Courses

Accounting — A Management Approach (1)
General Insurance I (Brokers) (62)
General Insurance II (Brokers) (63)
Business Law (64)

Options

Two of:

Organizational Behaviour (2)
Communications (3)
Administrative Procedures (4)
Written Communications in Business (13)

And two of:

Introduction to Marketing (7)
Principles of Economics (16)
Business Statistics (Math. & Statistics III and IV) (34 and 35)
Financial Analysis & Business Management (80)

9.2.2.9 McGill Certificate in Management (MARKETING)

Students may qualify for the McGill Certificate by completing 2 core courses and 6 options (a total of 48 credits) from those listed below.

Core Courses

Organizational Behaviour (2)
Introduction to Marketing (7)

Any three full course equivalents from:

Retail Locations (8)
Advertising Management (10)
Marketing Planning and Strategy (58)
Sales Organization (59)
Marketing Research (60)
Industrial Marketing (61)
Physical Distribution (Not offered)
International Marketing (Not offered)

And three of the following:

Accounting — A Management Approach (1)
Communications (3)
Salesmanship (9)
Principles of Economics (16)
Business Statistics (Math. and Statistics III and IV) (34 and 35)
Financial Analysis and Business Management (80)

9.2.2.10 McGill Certificate in Management (SYSTEMS DESIGN)

Students may qualify for the McGill Certificate by completing the core courses and three options (a total of 48 credits) as outlined below:

Core Courses

The following courses should be taken in sequence since successful completion of each will be prerequisite for the following course.

Introduction to Electronic Data Processing (5)
Introduction to Systems Innovation (6)
Systems Innovation Workshop (78)
Systems III (an Introduction to Management Science) (82)
Systems IV (Internal Controls and Systems Design) (79)
Systems V (Project Management) (81)

Options

Three from:

Accounting — A Management Approach (1)
Organizational Behaviour (2)
Communications (3)
Introduction to Marketing (7)
Financial Analysis and Business Management (80)
Survey of Basic Mathematics 1A1-525 (described in the Management — Graduate Section of this calendar).

9.2.2.11 McGill Certificate in Management (TRANSPORTATION)

Students may qualify for the McGill Certificate by completing the following program of courses:

Part I

Managerial Accounting (65)
Transportation Distribution Systems (Logistics) (69)

Part II

Introduction to Marketing (7)
Industrial Relations and Labour Law (12)
Transportation Economics (71)

Part III

Organizational Behaviour (2)
Airport Management (11)
Transportation Law and Government Regulations (70)

Part IV

Transportation Policy and Management (67)
Quantitative Methods and Decision Making (68)
Managerial Economics and Business Forecasting (72)

9.2.2.12 Certificate of the Canadian Institute of Management

In cooperation with the Canadian Institute of Management the McGill Centre for Continuing Education offers a series of courses leading to the Certificate in Management and Administration.

These courses aim at providing an opportunity for those in the management field to better qualify themselves for their present position and to prepare for future advancement. Individual courses may also be taken by anyone interested who has a junior matriculation certificate.

Students who qualify for membership in the Canadian Institute of Management are strongly advised to register with the Institute as they will not be given credit by the Institute for any courses taken prior to membership. Members may transfer with full credits to any major city across Canada where CIM courses are offered. A special booklet giving full details is available from the Centre for Continuing Education.

The program is divided into four sections, each section consisting of two courses of 15 lectures of 2 hours. The fee is $55.00 per course, and an examination is held at the end of each course. Fees for all courses are payable to McGill University. The fee for membership in the Institute is payable to CIM.

1) Candidates must be 25 years of age, have a junior matriculation certificate or equivalent education and several years of experience as industrial supervisors which afforded them an opportunity to become acquainted with various functions within industry.
2) At time of registration, candidates should register for both courses in the section they are taking. Owing to the amount of supplementary study required, students will not normally be allowed to enrol in more than one section in any one year.

Further information may be obtained from

The Canadian Institute of Management
P.O. Box 485, Station "B",
Montreal 110, Quebec
Telephone: 845-6612

Students may qualify for the Certificate in Management and Administration (C.I.M) by completing the following program:

Section I

Business Organization (52)
Accounting Principles (50)

Section II

Statistical Concepts (55)
Industrial Engineering (57)

Section III

Operation Planning and Analysis (56)
Marketing (53)

Section IV

Management of Human Resources (51)
Cases and Problems in Administration (54)

9.2.2.13 Diploma of the Society of Industrial Accountants of Quebec

The Society of Industrial Accountants of Quebec conducts its own qualifying examinations for the diploma of Registered Industrial Accountant (R.I.A.). The Society has adopted a policy of granting exemption from some of their examinations to students who have successfully completed equivalent courses in the McGill program. The remaining Society examinations must be written by all students.

The Society has introduced a new curriculum — Curriculum A — which students registering in 1973 will be required to follow. Students who are already registered with the Society and have been following Curriculum B will be permitted to continue their studies based on the old curriculum. The courses in both curricula are shown in Table A.

Students who wish to follow the program must also register with the Society. Further information regarding the curriculum, registration, training and exemptions may be obtained from:

The Society of Industrial Accountants of Quebec
1509 Sherbrooke Street West, Suite 15
Montreal 109. (931-2509)

R.I.A. PROGRAM 1973-74

CURRICULUM "A" (Introduced 1971)

	Society Course	*McGill Equivalent*
Qualifying Course:	Business Mathematics	Mathematics & Statistics II (33)
Level I:	Principles of Accounting	Accounting I (17) or (18)
	Introductory Economics	Economics I & II (38) and (39)
	Report Writing	Report Writing (37)
	Data Processing	Computer Systems (29)
Level II:	Accounting Theory & Problems	Accounting II (19)
	Commercial Law	Law I (36)
	Organizational Behaviour	Management I (28)
	Quantitative Methods I	Mathematics & Statistics III (34)
Level III:	Accounting for Cost Determination Analysis & Control	Accounting for Management (83)
	Taxation	Taxation A (26)
	Quantitative Methods II	Mathematics & Statistics IV (35)

Level IV: †Accounting for Management
Planning & Control
Financial Management
†Selected Topics in Accounting
} *

Level V: Information Systems
Operational Auditing
†Management Processes & Problems
†Case Study
} *

*The Society has introduced Level I of the new curriculum in 1971-72, Level II in 1972-73 and Level III in 1973-74. Levels IV & V will be introduced as the Society makes the courses available and offers examinations therein across Canada.

†To qualify for their R.I.A. diploma, all students must write and pass the Society's examinations in these courses. For all other courses successful completion of the McGill equivalent courses is accepted by the Society.

R.I.A. PROGRAM 1973-74

CURRICULUM "B"

	Society Course	*McGill Equivalent*
i)	Accounting III	Accounting III & Taxation B (20) and (27)
ii)	Industrial Organization & Management	Management I & II (28) and (31)
iii)	Accounting for Cost Determination, Analysis & Control	Managerial Accounting I & Computer Systems (21) and (29)
iv)	Auditing	Auditing I & II (24) and (25)
v)	Cost & Management Accounting	Managerial Accounting II (22)
vi)	Case Study	Managerial Accounting III (23)

Students are required to write the Society's examinations in all the above subjects with the sole exception of Industrial Organization & Management, for which the McGill examinations are accepted by the Society.

On Tuesday 21 and Thursday 23 August representatives from the Society of Industrial Accountants of Quebec will be available in the Centre from 5 — 7 p.m. for interview and registration of students wishing to proceed towards the R.I.A. diploma.

9.2.2.14 Diploma of the Certified General Accountants Association of the Province of Quebec

The Certified General Accountants Association of the Province of Quebec conducts its own qualifying examinations, but requires that candidates must have previously passed or been granted exemption from the courses shown in Table A. Students who wish to follow this program must also register with the Association.

Representatives of the Certified General Accountants Association will be available in the Centre on Tuesday 21 and Thursday 23 August from 5 to 7 p.m. for information and registration of students wishing to proceed towards the diploma of the C.G.A.

Further information regarding registration, training and examinations may be obtained from:

The Certified General Accountants Association of the Province of Quebec
5165 Queen Mary Road, Suite 512
Montreal 248. (487-3544)

TABLE A. C.G.A. & R.I.A. COURSES 1973-74

	C.G.A. Program	R.I.A. Program	
		A	*B*
Accounting I (17) or (18)	X	X (i)	—
Accounting II (19)	X	X (ii)	—
Accounting III (20)	X	—	X
Accounting IV (20A)	X	—	—
Accounting for Management (83)	—	X (iii)	—
Managerial Accounting I (21)	X	—	X
Managerial Accounting II (22)	X	—	X
Managerial Accounting III (23)	—	—	X
Auditing I (24)	X	—	X
Auditing II (25)	X	—	X
Taxation A (26)	X	X (iii)	—
Taxation B (27)	—	—	X
Finance (30)	X	—	—
Computer Systems (29)	X	X (i)	X
Mathematics I (32)	—	—	—
Mathematics & Statistics II (33)	X	X (i)	—
Mathematics & Statistics III (34)	X	X (ii)	—
Mathematics & Statistics IV (35)	—	X (iii)	—
Economics I (38)	X	X (i)	—
Economics II (39)	X	X (i)	—
Law I (36)	X	X (ii)	—
Law II (36A)	X	—	—
Management I (28)	—	X (i)	X
Management II (31)	—	—	X
Report Writing (37)	—	X (i)	—

(i), (ii), (iii) indicate Levels in the New R.I.A. curriculum.

C.G.A. and R.I.A. Courses 1973-74 Timetable

MONDAYS —

6-8 p.m. — Accounting I (17) or (January only, 18)
— Auditing I (September only) (24)
— Auditing II (January only) (25)
— Taxation A (September only) (26)
— Mathematics & Statistics IV (January only) (35)

8-10 p.m. — Economics I (September only) (38)
— Economics II (January only) (39)
— Law II (36A)
— Management I (28)

TUESDAYS —

6-8 p.m. — Accounting II (19)
— Taxation B (January only) (27)
— Computer Systems (29)

WEDNESDAYS —

6-8 p.m. — Accounting III (20)
— Mathematics I (September only) (32)
— Mathematics and Statistics II (33)
— Mathematics and Statistics III (September only) (34)

THURSDAYS —

6-8 p.m. — Accounting I (January only) (18)
— Accounting IV (20A)
— Accounting for Management (83)
— Managerial Accounting I (21)
— Managerial Accounting II (22) (September only)
— Managerial Accounting III (23) (January only)
— Finance (September only) (30)
— Law 1 (36)
— Report writing (37)

8-10 p.m. — Law II (36A)
— Management II (January only) (31)

9.2.2.15 **Diploma of the Chartered Institute of Secretaries in Canada**

Students who wish to obtain the diploma of The Chartered Institute of Secretaries in Canada are required to write an Intermediate examination of four subjects and a final examination of nine subjects set by the Institute. Students should follow courses in the McGill evening program that correspond to the Institute's examination syllabus. Courses may have to be taken from several sections. All students must register with the Institute.

Further details regarding registration, training and examinations may be obtained from:

The Chartered Institute of Secretaries
4516 Girouard Avenue
Montreal 260. (482-7553)

9.2.2.16

Travel Counselling. (In cooperation with the American Society of Travel Agents. See course description no. 14).

9.2.2.17

Practical course in Public Relations. (In cooperation with the Canadian Public Relations Society. See course description no. 15).

9.3 DESCRIPTIONS OF COURSES OFFERED

NOTES:

i) The courses marked with an asterisk will be repeated in a fifteen week period commencing mid-January 1974.

ii) Buildings for these courses are subject to change for January courses. Check at time of registration in December or January.

1

3A0-011. ACCOUNTING — A MANAGEMENT APPROACH. (6 credits.) Mr. W. Hale. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.

Accounting concepts and the measurement of income; analysis and interpretation of financial statements; accounting in management control; accounting in business decisions. *Text:* Anthony, R. N. *Accounting — Text and Cases,* 4th Edition (Irwin).

2

3A0-221. ORGANIZATIONAL BEHAVIOUR. (6 credits.) 30 lectures of 2 hours. *Fee:* $110. Mr. J. Levine. Mondays at 6 p.m., beginning August 27. Professor David N. S. Robertson. Wednesdays at 6 p.m., beginning August 29. Professor E. Burnett. Wednesdays at 8 p.m., beginning August 29.

The course utilizes various learning techniques to examine and experiment with the findings of behavioural research in order to asssess their potential for increasing individual and organizational effectiveness. On trying to understand how this research can help increase organization effectiveness, it attempts to answer the following:

1) What is an Organization ?
2) What is organization development?
3) What is it that organization lacks that is provided through OD efforts?

Text: Behavioural Science — Concepts and Management Application, Studies in Personnel Policy No. 216 (N.I.C.B.).

3

3A0-231. COMMUNICATIONS. (6 credits.) 30 lectures of 2 hours. *Fee:* $110. Mr. D .Patrick. Wednesdays at 6 p.m. beginning August 29. Mr. R. Oppenheimer. Wednesdays at 8 p.m., beginning August 29.

This course deals with human communications involving transmission, receiving and processing of messages. Small group discussions are used to provide practice in listening, speaking, observing and organizing of thought. The theoretical framework of interpersonal relationships is also introduced.

4

3A0-241. ADMINISTRATIVE PROCEDURES. (6 credits.) Mr. H. Suffrin. 30 lectures of 2 hours. Thursdays at 6 p.m., beginning August 30. *Fee:* $110.

In this course each student is provided with an opportunity to develop to the greatest extent possible an awareness of and way of thinking about human attitudes, relationships and behaviour in business situations. Classroom work will consist largely of analysis and discussion of actual cases dealing with people and problems within the context of business organizations. The student should progress towards a better understanding of the fact that he, as an administrator, lives in a world of many values which are persistent, changing and often in conflict. Overall, the student should achieve a degree of competence in dealing with differences between persons and groups, ideals and objectives within an organization.
Text: Lawrence and Seiler, *Organization Behaviour and Administration* (Irwin).

5

3A0-311. INTRODUCTION TO ELECTRONIC DATA PROCESSING. (6 credits.) Mr. L. Kerklaan. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.

This course is designed to familiarize the student with all aspects of electronic data processing. It will trace the history and development of data processing from its early methods of calculation through to today's powerful third generation computer systems. This will involve a detailed study of computer terminology, techniques, systems, programming, and the future potential of Data Processing.

6

3A0-321. INTRODUCTION TO SYSTEMS INNOVATION. (6 credits.) Mr. M. Collins and Mr. J. Kirby. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110; *Prerequisites:* There are no formal requirements for this course but students with no experience in Data Processing or Systems should complete the Introduction to Data Processing or equivalent.

This course will stress the methodology and techniques of system innovation including the complete planning and development of information systems. The definition of design criteria and the preparation of a proposal for achieving them. The design, construction, implementation and evaluation of the system plan.

7

3A0-511. INTRODUCTION TO MARKETING. (6 credits.) 30 lectures of 2 hours. *Fee:* $110. Mr. R. A. Marcus. Tuesdays at 6 p.m., beginning August 28. Wednesdays at 6 p.m., beginning August 29. Thursdays at 8 p.m., beginning August 30.

This course will give the student a background for forming marketing policies and the skill to put these policies into effect in solving problems and taking advantage of new opportunities which constantly arise. The course will consist of lectures and discussion of case histories supplied by a number of Canadian firms. Topics: choosing methods of distribution; advertising; broad policy; sales promotion; market research; sales management; pricing, merchandising; packaging the introduction of new products.

8

3A0-521. RETAIL LOCATIONS. Mr. Richard Salomon. 15 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $55.

Retail locations with an emphasis on Shopping Centres from the point of view of the retailer, developer and mortgage lender. Major topics include: Economics of Shopping Centres; Department Store and Discount Department Store Policies; Financing of Shopping Centres and Commercial Buildings; Utilization of Shopping Centre Economic Reports; Downtown Locations; Tenant Mix in Shopping Centres; Leases; Architectural trends in Shopping Centres; Promotion of Shopping Centres; Parking Ratios.

9

3A0-531. SALESMANSHIP. Mr. L. Ghobrial. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.

The course is designed to meet the needs of salesmen who are candidates for advancement and those who are interested in a refresher course.

The use of cases and role-playing will form the major part of the program. Outline of the course:

1) Introduction:
   1. The evolution of Marketing and Selling and their definition. The relationship between the two functions. The importance of selling.
   2. The place of Selling in our economy. Selling as a career and the multiplicity of jobs available in the market that compete with Selling. The rewards and satisfaction in Selling.
2) Qualifications of Salesmanship. Salesmanship and promotion in the life of the Salesman.
3) Relationships between the Salesman, the Company and the Customer. Ethics in Selling.
4) Requirements of a successful Salesman:
   1. Customer analysis
   2. Territory analysis
   3. Call preparation
   4. Communication
   5. Follow-up and service
5) The Salesman and His Product Competition.

Texts: Pederson and Wright, *Salesmanship — Principles and Methods* (Irwin); Grissy and Kaplan, *Salesmanship. The Personal Force in Marketing* (Wiley).

10

3A0-541. ADVERTISING MANAGEMENT. (6 credits.) Mr. R. A. Marcus. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.

This course will cover the basics of advertising. It will discuss and analyze the need for advertising objectives, reaching target markets through media, and communicating with target customers with messages. It will study advertising and its relation to the overall marketing function. It will cover such topics as: The Role of Advertising in our Society as well as in Marketing; Strategy of Campaigns; Importance of Behavioural Sciences in Advertising; Advertising Copy; Planning Print (newspaper and magazine) Campaigns; Planning Broadcast (Television and Radio) Commercials and Campaigns; Outdoor; Direct Mail; Media Planning; Marketing Research; Complete Campaigns; Advertising Management; National and Retail Advertising; Consumer and Industrial Advertising and development of the Annual Marketing Plan. Course will consist of lectures, discussions and case studies.

Text: Mandell, Maurice I., *Advertising,* latest edition (Prentice Hall).

11

3A0-611. AIRPORT MANAGEMENT. (6 credits.) Dr. A. Ismail. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.

This course is designed to present, explore and discuss the most current business practices in the area of airport management.

The aim is to provide an up-to-date management development program geared to meet the needs of management personnel in the aviation industry. Topics included are: transport planning and policy; the objectives and framework of comprehensive transportation plans; airport planning, physical planning, ground access, and financial planning; administration and financial management; the psychology of management; profile of a good manager; management by objectives; leases and contracts; pricing; operations and maintenance; airport public relations; the airport manager — characteristics of an airport manager; duties of an airport manager and the airport manager's authority.

Texts: Airport Management — Selected Papers on Planning and Administration (Insitute of Transportation and Traffic Engineering), University of California; *Airport Master Plans* (February 1971). Dept. of Transportation Federal Aviation Administration.

12

3B0-811. INDUSTRIAL RELATIONS AND LABOUR LAW. (3 credits.) Mr. A. Stein. 15 lectures of 2 hours. Mondays at 8 p.m., beginning August 27. *Fee:* $55. To ensure that this course is completed before Christmas, a lecture will be scheduled Thursday, September 13.

This is a practical and theoretical course dealing with labour law and industrial relations particularly in the transportation industry. It includes: the history and analysis of labour legislation, particularly IRD and IA, trade unions, certification, conciliation, arbitration, strikes, union security, etc. The course will also examine the nature and functions of the Labour Relations Board and contents of Collective Agreements. Current and recent disputes and third-party intervention will be discussed.

Texts: The Industrial Relations Disputes and Investigation Act (Queen's Printer); *Quebec Labour Code.*

13

3A0-821. WRITTEN COMMUNICATIONS IN BUSINESS (Formerly Writing for Business). Mrs. K. M. Vaughan. 30 lectures of 2 hours. Tuesdays at 8 p.m., beginning August 28. *Fee:* $110.

The objective of the course is to enable students to communicate effectively in business letters and reports. The course offers experience in analysing letter writing situations and handling them, and training in the selection and classification of material for reports. Through vocabulary study to improve verbal facility and through practice in expressing ideas in a clear, concise, grammatical way, students acquire communication skills. Special attention is paid to the public relations role of business writing as well as to its prime purpose of providing information and persuading. From the assignments to be written for correction and comment, students choose the ones which reflect their interests.
Texts: Shurter, Robert L., *Written Communication in Business* (McGraw); Keithley, Erwin M., *English for Modern Business* (Irwin).

14

3A0-831. INTRODUCTION TO TRAVEL COUNSELLING (In cooperation with the Canadian Institute of Travel Counsellors (Quebec). Mr. E. I. Cichon, C.T.C. 30 lectures of 2 hours. Wednesdays at 8 p.m., beginning August 29. *Fee:* $120 plus $30 to C.I.T.C.

This is an introductory course for new employees working for a travel agency or for those interested in entering this field of work. The course will survey world tourism and the complete travel service offered by an agency. Practical topics include ticketing, documentation, geography, as applied to individuals and groups: air, steamship, train, car rentals, etc. form individual parts of the course. Guest lecturers will discuss specialized topics and problems related to travel. A certificate will be awarded to successful students.

15

3A0-841. A PRACTICAL COURSE IN PUBLIC RELATIONS (In cooperation with the Canadian Public Relations Society (Quebec) Inc.) Mr. H. R. Redmond. 30 lectures of 2 hours. Wednesdays at 8 p.m., beginning August 29. *Fee:* $110.

Why and how business and other organizations seek the goodwill of the general public and specific "publics". How news handling, employee and investor communications, community relations and other aspects of a co-ordinated program fulfil a public relations policy. Case studies and guest lecturers. The course should enlarge the perspective of those starting in this field and provide insight for those hoping to enter it.
Text: Darrow *et al., Dartnell Handbook of Public Relations.*

16

3A0-911. PRINCIPLES OF ECONOMICS. (6 credits.) Mr. D. A. Berardinucci. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.

This course is oriented towards providing a practical knowledge of fundamental economic principles. It deals with price theory, national income theory, monetary and fiscal policy as tools for combating unemployment and inflation, money and banking and international trade and finance. The role of the government sector in such policy issues as pollution, discrimination, poverty, and urban decay will also be examined at some length.
Texts: Eckaus, Richard S., *Basic Economics* (Little, Brown and Co.); North, D. C. and Miller, R. L., *The Economics of Public Issues* (Harper and Row).

17

3A1-011. ACCOUNTING I. (6 credits.) 30 lectures of 2 hours each. Mondays at 6 p.m., beginning August 27. Arts Building. *Fee:* $110.00.
Syllabus: Introduction to accounting principles and concepts; measurement of accounting income; preparation of financial statements; balance sheet classifications; depreciation; manufacturing statements.

18

3C1-011. ACCOUNTING I. (6 credits.) 30 lectures of 2 hours each. Mondays & Thursdays at 6 p.m., beginning January 7. Burnside Hall. *Fee:* $110.00
Syllabus: Introduction to accounting principles and concepts; measurement of accounting income; preparation of financial statements; balance sheet classifications; depreciation; manufacturing statements.

19

***3B1-021. ACCOUNTING II.** (3 credits.) 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning August 28. Arts Building. *Fee:* $55.00. *Prerequisite:* **3A1-011 Accounting I** or equivalent.
Syllabus: Development of accounting theory; valuation and measurement of income; financial statement presentation; Canada Corporations Act and CICA recommendations; current issues and developments. Current assets and liabilities, working capital and flow of funds; long lived assets; long term debt; shareholders' equity; partnerships.

20

*3B1-031. **ACCOUNTING III.** (3 credits.) 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
Syllabus: The underlying concepts and accounting treatment of business combinations, consolidations, pooling of interests, professional pronouncements and current controversies. Reorganizations; valuation of business enterprises; branches — domestic and foreign; instalment sales; consignments.

20A

*1B5-400. **ACCOUNTING IV.** (3 credits.) 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $60.00. *Prerequisites:* **3B1-031 Accounting III** and **3B1-411 Finance** or equivalent. This course is for final year C.G.A. students only.
Syllabus: Review and integration of previous courses; specialized accounting including fund accounting; specialized types of operations including banks, insurance companies, municipalities; accounting treatment of price level changes; contemporary financial accounting issues and developments.

21

3A1-051. **MANAGERIAL ACCOUNTING I.** (6 credits.) 30 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $110.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
Syllabus: Introduction to accounting for management. Elements of cost; job order and process cost systems; budgeting; standard costs and analysis of variances; cost/volume/profit relationships; variable costing; relevant costs.

22

3B1-061. **MANAGERIAL ACCOUNTING II.** (3 credits.) 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Leacock Building. *Fee:* $55.00. *Prerequisite:* **3B1-051 Managerial Accounting I** or equivalent.
This course is for R.I.A. students in Curriculum B & C.G.A. students.
Syllabus: Advanced budgeting and standard costs; cost analysis applied to decision making; capital budgeting; performance measurement; current developments in managerial accounting.

23

3C1-071. **MANAGERIAL ACCOUNTING III.** (3 credits.) 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning January 10, 1974. Leacock Building. *Fee:* $55.00. *Prerequisite:* **3B1-061 Managerial Accounting II** or equivalent.
This course is for R.I.A. students in Curriculum B.
Syllabus: The use of managerial accounting concepts and techniques to solve comprehensive business problems. Instruction will be by the case method, and written reports will be required.

24

3B1-091. **AUDITING I.** (3 credits.) 15 lectures of 2 hours each. Mondays at 6 p.m., beginning August 27. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
Syllabus: Nature and purpose of auditing; appointment, remuneration, powers, duties and responsibilities of an auditor; internal control; audit programs; financial statement presentation; procedures for verification of items in financial statements; audit reports.

25

3C1-101. **AUDITING II.** (3 credits.) 15 lectures of 2 hours each. Mondays at 6 p.m., beginning January 7. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-091 Auditing I.**
Syllabus: Auditing standards; auditor's legal rights and responsibilities; problems relating to: incorporated businesses, consolidated statements, prospectuses; events subsequent to balance sheet date; analytical, operational and management auditing; audits requiring special considerations; investigations and special reports; current developments in auditing principles, practices and techniques; audit of EDP systems; role of internal audit.

26

3B1-121. **TAXATION A.** (3 credits.) 15 lectures of 2 hours each. Mondays at 6 p.m., beginning August 27. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
This course is also for students taking the Taxation option in the Institute of Canadian Bankers' program.
Syllabus: Introduction to principles of taxation; determination of taxable income — personal and corporate; capital gains; corporate distributions; special status corporations; partnerships; trusts; non-residents and international; administrative provisions; sales taxes.

27

3C1-131. TAXATION B. (3 credits.) 15 lectures of 2 hours each. Tuesdays at 6 p.m., beginning January 9. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
This course is for R.I.A. students in Curriculum B.
Syllabus: Introduction to principles of taxation; computation of taxable income, personal and corporate; capital gains; partnerships; trusts; non-residents and international; administrative provisions; sales taxes; bankruptcy and liquidation.

28

***3B1-211. MANAGEMENT I.** (3 credits.) 15 lectures of 2 hours each. Mondays at 8 p.m., beginning August 27. Stephen Leacock Building. *Fee:* $55.00.
Syllabus: The use of behavioural sciences in analysing individual and group behaviour within the organization; human relations; internal structures; authority; learning; motivation; conflict; innovation; communications. Application of these theories and concepts to improve managerial effectiveness.

29

***3B1-311. COMPUTER SYSTEMS.** (3 credits.) 15 lectures of 2 hours each. Tuesdays at 8 p.m., beginning August 28. Arts Building. *Fee:* $70.00. This includes a nominal fee of $15.00 for the use of computer and terminals.
Syllabus: An introduction to fundamental concepts of using a computer and components of a computer system; computer programming and remote terminals; business information processing.

30

3B1-411. FINANCE. (3 credits.) 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 31. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.
Syllabus: Interpretation and analysis of financial statements; financial forecasting; management of resources; capital budgeting; alternative methods of financing; valuation of business enterprises.

31

3C1-611. MANAGEMENT II. (3 credits.) 15 lectures of 2 hours each. Thursdays at 8 p.m., beginning January 10. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-211 Management I** or equivalent. This course is for R.I.A. students in Curriculum B.
Syllabus: The management process; the functional areas of business — production, marketing, personnel and industrial relations and finance. Introduction to the decision-making process.

32

3B1-711. MATHEMATICS I. (3 credits.) 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $55.00.
This is a remedial course and is strongly recommended for those students who are required to take Course 3B1-721 Mathematics and Statistics II, but who have never taken logarithms and progressions in Intermediate or Elementary Algebra or who have forgotten them.
Syllabus: The associative, distributive and commutative laws; fundamental operations; factoring and simplification of algebraic expressions; equations of the first degree in one and two unknowns; quadratic equations, indices, logarithms, progressions; simple graphs, linear interpolation.

33

***3B1-721. MATHEMATICS & STATISTICS II.** (3 credits.) 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-721 Mathematics** or recent equivalent.
Syllabus: Simple and compound interest; equated time; equation of payments; annuities certain; sinking funds; bonds; amortization tables; matrices & the algebra of sets.

34

3B1-731. MATHEMATICS & STATISTICS III. *(3 credits.)* 15 lectures of 2 hours each. Wednesdays at 6 p.m., beginning August 29. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-721 Mathematics and Statistics II** or equivalent.
Syllabus: Statistics in business management; probability; statistical populations; principles of sampling; statistical estimation; hypothesis testing and the decision making aspects of statistics.

35

3C1-741. MATHEMATICS & STATISTICS IV. (3 credits.) 15 lectures of 2 hours each. Mondays at 6 p.m., beginning January 7. Arts Building. *Fee:* $55.00. *Prerequisite:* **3B1-731 Mathematics & Statistics III** *or equivalent.*
Syllabus: Quality control; regression & correlation analysis; time series analysis; introduction to the basic concepts of decision theory under certainty & uncertainty; linear programming & network analysis; simulation.

36

***3B1-811. LAW I.** (3 credits.) 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $55.00.
Syllabus: Sources and administration of law; the Canadian Constitution and the division of powers; the Quebec Civil Code comprising the law of persons, the law of property, obligations, contracts, sale, lease and hire, mandate, surety, privileges, hypothecs and prescription.

36A

***1B5-245. LAW II.** (3 credits.) 15 lectures of 2 hours each. Mondays or Thursdays at 8 p.m., beginning August 27 and 30. Arts Building. *Fee:* $60.00. *Prerequisites:* **3B1-811 Law I** and **3B1-091 Auditing I,** or equivalent.
Syllabus: Canada Corporations Act; Quebec Companies Act; Bankruptcy and liquidations; executorship, negotiable instruments.

37

***3B1-821. REPORT WRITING.** 15 lectures of 2 hours each. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $55.00.
Syllabus: Development through practice of effective written communication — letters and reports. The emphasis will be on transmitting information and persuading in a clear, concise and grammatically accurate fashion. The use of vocabulary, structure and style will be examined. Students will be encouraged to discriminate in the selection of material for reports through proper analysis and classification of data.

38

3B1-911. ECONOMICS I. (3 credits.) 15 lectures of 2 hours each. Mondays at 8 p.m., beginning August 27. Leacock Building. *Fee:* $55.00.
Syllabus: Introduction to the basic forces at work in our economic system; the concepts of national output and income; aggregate employment and the general level of prices; the role of money and the banking system; fiscal and monetary policies; international economics; economic growth and development.

39

3C1-921. ECONOMICS II. (3 credits.) 15 lectures of 2 hours each. Mondays at 8 p.m., beginning January 7. Leacock Building. *Fee:* $55.00. *Prerequisite:* **3B1-911 Economics I.**
Syllabus: Economic analysis of the firm, its environment and behaviour; price-production policies; market behaviour and performance under varying conditions of competition and monopoly; application of micro-economic theory to economic problems of the firm in the context of managerial decision making.

40

3A2-011. FUNDAMENTALS OF ACCOUNTING. (6 credits.) 30 lectures of 2 hours. *Fee:* $110.00. Mr. A. Bates. Mondays at 6 p.m., beginning August 27. Mr. A. Bates. Mondays at 8 p.m., beginning August 27. Mr. S. R. Jarry. Tuesdays at 6 p.m., beginning August 28. Mr. S. R. Jarry. Tuesdays at 8 p.m., beginning August 28.

This course deals with basic accounting concepts and techniques. It will concentrate on the methods of preparing financial statements. Special attention will be paid to the "Statement of sources and applications of funds". The use of programmed textbooks is recommended, such as: T. J. Shoniker and H. G. Steinman, *Accounting Fundamentals* (Prentice-Hall), 1971; Robert N. Anthony, *Essentials of Accounting* (Addison-Wesley Publishing Co.).

This should insure that a certain portion of the total class time be devoted to an introduction to the postulates and assumptions underlying financial statements, which will form the core of the subsequent course: "Financial Accounting".
Text: Pyle, White & Zinn, *Fundamental Accounting Principles* (Irwin).

41

3A2-021. FINANCIAL ACCOUNTING. (6 credits.) 30 lectures of 2 hours. *Fee:* $110.00. *Prerequisite:* **Fundamentals of Accounting.** Wednesdays at 6 p.m., beginning August 29.

The course will start by a rapid overview of basic accounting techniques, as covered in the course "Fundamentals of Accounting". The emphasis will be placed on the analysis of data, the testing of its validity and the communication of the information to intended users. A major portion of the total class time will be devoted to a critical examination of the postulates and assumptions underlying financial statements, and to their impact on the development and analysis of financial statements. The main kind of information studied will be that which is intended for external financial reporting (shareholders, creditors, taxing authorities, government agencies, employees and other users), as opposed to internal data used by the management of the firm in its decision-making.

A key objective of the course is to sharpen the analytical ability of the student confronted with financial statements of various enterprises. At the completion of the course, he should be more aware of the limitations of financial reporting and be able to examine and interpret financial statements with a critical mind.

Text: Moore and Jaedicke, *Managerial Accounting* (South Western).

42

3A2-211. COMMUNICATIONS. (3 credits.) Mr. D. Patrick. 30 lectures of 2 hours. Wednesdays at 8 p.m., beginning August 29. *Fee:* $110.00. Limited to 35 students.

The aim of this course is to sharpen the skill, and improve the student's ability to communicate effectively with another person, be it his superior, subordinate, peer or client. An effective organization is a consequence of highly developed skill and competence in interpersonal relations. Directives and policies need to be understood and their meaning accepted if they are to be followed with enthusiasm. Communication is sometimes conceived as a process simply of speaking and writing clearly. However, to be able to transmit one's own thought effectively one must have the ability to listen to and to understand what another person is trying to communicate. The effectiveness of communication in organizational settings depends in large part upon the skill with which responsible members listen with understanding to the perceptions, assumptions, and feelings of those with whom they interact, in the process of accomplishing the organizational purpose.

Texts: Patrick, D. *Introduction to Human Communications and Self-Management* (I.C.B.). Bois, J., *The Art of Awareness* (W. C. Brown) — Reference only.

43

3A2-411. BUSINESS FINANCE. (6 credits.) 30 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $110.00. *Prerequisites:* **Financial Accounting** and **Economics.**

This course will start by a review of the main concepts of financial accounting and of techniques of financial statement analysis. The student will then be introduced to the techniques and variables to be considered in the management of working capital and short term financing; determination of needs, alternative ways of financing, selecting of the optimal alternative. Long term financing, including the determination of needs and alternative ways of financing will constitute a major area of study.

The following topics will also be tackled: leverage, capital structure, cost of capital, capital budgeting and risk analysis, dividends policy, valuation of the firm, mergers.

Texts: R. W. Johnson, *Financial Management,* latest edition (Alan Bacon); E. Brigham *et al., Cases in Managerial Finance* (Holt, Rinehart, Winston).

44

3A2-431. INTERNATIONAL BANKING. (6 credits.) Dr. J. Spandanopoulos. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00.

This course, "International Banking", deals primarily with the following:

1) The international collaboration of worldwide countries and banks to develop productivity (Marshall Plan, Colombo Plan, Comecon Plan, etc. World Bank, Import-Export Bank, Europeans Investment Bank, etc.).

2) The role of the Central Bank and the other banks and the creating of the Monetary Fund in order to preserve the stabilization of foreign exchange rates and the comparison with North American federal reserve controls and the relative controls of the European countries.

3) The administrative and accounting organization of European countries, the banking risks, the control of clearing transactions, the new attempts of the European governments to create industrial development banks, etc.

4) The international banking technique (Services of international banking, foreign exchange transactions — swap, forward, hedging transactions — letter of credit, export documentation, export development corporations, banking acceptances, etc.).

5) Comparative banking (Banking in various countries, namely, Canada, U.S.A., United Kingdom, France, West Germany, Italy, Switzerland, Sweden, Israel, Lebanon, Greece, Communistic countries, Japan, Hong Kong, India, etc.).

45

3A2-611. BUSINESS STRATEGY. (6 credits.) Mr. P. Wood and Mr. M. Cochrane. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00. *Prerequisites:* Completion of all the other core courses in the I.C.B. Program.

The main objective of this course is the formulation and implementation of long-range decisions. These decisions should take into account the broader socio-economic background and should also ensure integration of the needs of the various corporate functional areas. Emphasis will be placed on the inter-relationship of these functional areas, as this is the only course that will integrate the knowledge acquired by the bankers in previously taken courses in more specific disciplines.

It is expected that this course will develop an awareness of the factors involved in the determination and implementation of corporate strategy and an understanding of the concept of corporate citizenship.

While enabling bankers to evaluate better the overall performance of their corporate clients, the concepts developed in this course should also help them to become more effective members of their own organizations. A keen sense of corporate citizenship among branch managers would further improve the bank's role in the community.

46

3A2-621. BUSINESS ADMINISTRATION. (6 credits.) 30 lectures of 2 hours. *Fee:* $110.00. Mr. M. L. Turcotte. Mondays at 6 p.m., beginning August 27. Mr. F. Bowyer. Wednesdays at 8 p.m., beginning August 29.

The material will consist of readings and cases drawn from the disciplines that now form the body of knowledge underlying administration: production, marketing, finance, cost control, human relations and organization. A special emphasis will be placed on the integration of these disciplines and the course will deal extensively with planning concepts and techniques.

It provides a basic knowledge of the subjects which the banker will have the opportunity to delve into in more detail in the two other parts of the I.C.B. Program.

Text: Thain, Wettlaufer and Martin, *Business Administration in Canada* (McGraw-Hill).

47

3A2-811. BUSINESS LAW. (6 credits.) Mr. D. H. Tees. 30 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $110.00.

The purpose of this course is to present the banker with an idea of what is involved in the concept of law, rather than with the more technical aspects which would be associated with a regular law course. The emphasis will therefore be placed on a general introduction to the nature of law and its influence on Canadian society. Part of the course will be concerned with introducing the banker-student to certain basic legal techniques: contracts and commercial documents, responsibilities and solvency of corporations, as well as statutes of special interest to the banking community such as the Bank Acts.

Students may complete requirements for Business Law by substituting **3A5-831 Business Law** (64).

Text: Franklin, *Introduction to Quebec Law* (Sir Isaac Pitman) 1972.

48

3A2-911. ECONOMICS. (6 credits.) Professor M. Loutfi. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00.

This course constitutes an introduction to microeconomics and macroeconomics. It introduces the principles of economics, covering the elements of economic analysis and the theory of the firm. The course also consists of a description of the structure and functioning of the Canadian economy. More specifically, it introduces the determination of national income and expenditure; business organizations; markets, pricing and the allocation of resources; distribution of income; international trade; government finance and fiscal policy; money and monetary policy; price levels, the volume of economic activity and how banks fit into the operations of the financial system.

49

3A2-921. MONEY AND BANKING. (6 credits.) Dr. G. Kardouche. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00.

The course is divided into two main parts, macro-economics and money and banking. The emphasis in both parts is on the policy implications of economic analyses. The first semester will be devoted to an analysis of fluctuations in national income, with emphasis on the Keynesian and modern Quantity Theory (Friedman) interpretations. Evidence from current empirical literature (e.g. fiscal vs. monetary stabilization policies) will be examined. The second part examines the role of money in the determination of economic activity. Emphasis will be on the role of chartered banks and other financial intermediaries as creators of money

and near monies, and these institutions' role in transmitting monetary policy. Articles covering recent Canadian domestic and international monetary experience will be assigned, in addition to the chapters from the textbook. From time to time distinguished bankers may be invited to address the students.
Text: Boreham *et al., Money & Banking* (Holt Rinehart) 1969.

50

3C3-011. ACCOUNTING PRINCIPLES. Mr. R. Freeborough. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning January 8. Mr. E. Heft. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning January 8. *Fee:* $55.00.

In this course, the student will study accounting principles in an effort to gain a fundamental appreciation of both general and cost accounting practices. Course includes discussion of financial statements, various approaches to cost accounting, the influence of budgets and budgetary controls and financial statement analysis.
Text: David H. Li, *Accounting for Management Analysis* (Merrill Books).

51

3B3-211. MANAGEMENT OF HUMAN RESOURCES. (3 credits.) Mr. N. J. Keesal. 15 lectures of 2 hours. Wednesdays at 6 p.m , beginning August 29. *Fee:* $55.00.

While this course will cover the Labour Relations Act, union relations, job evaluation, wages and salary administration, personnel administration and communications, its general emphasis will be on the role of an administrator in dealing with human problems and developing leadership in organizational structures.
Texts: Glover and Hower, *The Administrator,* latest edition (Irwin); Strauss and Sayles, *Personnel — The Human Problems of Management* (Prentice Hall).

52

3B3-221. BUSINESS ORGANIZATION. Mr. M. Guay. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $55.00.

The history and development of the modern business organization is thoroughly discussed in this course. The student will gain knowledge of the types and kinds of business ownership as well as the types of organization structures. The basic philosophies of modern business concepts will be discussed in an effort to prepare the student for his studies in the remainder of the course.
Text: W. H. Pugsley, *Canadian Business Organization and Management* (McGraw-Hill).

53

3C3-511. MARKETING. Mr. M. Guay. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning January 8. *Fee:* $55.00.

A broad management approach will be adopted in examining the marketing function as it is organized and practised by the modern business enterprise. The elements to be studied will include approaches to formulation of market strategies based on the origination and integration of policies respecting product mix, selection of distribution channels, and promotion and pricing of output. The course will also examine some of the historical and institutional factors which have contributed to current marketing practices. Case histories will be used to illustrate the principles behind these practices.
Texts: Leighton and Thain, *Cases in Canadian Marketing* (latest edition) (McGraw Hill); Kotler, *Introduction to Marketing Management* (Prentice Hall).

54

3C3-611. CASES AND PROBLEMS IN ADMINISTRATION. (3 credits.) Mr. N. J. Keesal. 15 lectures of 2 hours. Wednesdays at 6 p.m., beginning January 9. *Fee:* $55.00.

Group discussions on case problems. Students will be required to analyze specific case material and to present their findings.
Texts: Smith and Christensen, *Policy Formulation & Administration,* 5th Ed. (Irwin); Hunt, Williams and Donaldson, *Basic Business Finance,* newest edition (Irwin).

55

3B3-711. STATISTICAL CONCEPTS. Mr. I. Scarowsky. 15 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $55.00.

In this course the student will gain insight into the ever increasing influence of statistics on management decision making. Basic concepts of probability, statistical analysis, expected value, decision trees and regression are some of the major areas that will be covered.
Texts: Spur and Bonnini, *Statistical Analysis for Business Decisions* (Irwin); Moroney, *Facts from Figures* (Pelican Books).

56

3B3-721. OPERATION PLANNING AND ANALYSIS. Mr. E. Buchholz. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $55.00.

This course introduces some of the quantitative methods and models for the choice, planning and control of production, inventory and distribution systems. The aim is to give the students a basic understanding of the use and value of these techniques, with emphasis on problem formulation and practical applications.

57

3C3-811. INDUSTRIAL ENGINEERING. Mr. J. Sincennes. 15 lectures of 2 hours. Mondays at 6 p.m., beginning January 7. *Fee:* $55.00.

This course is designed to give the student an overall appreciation of this very valuable aspect of the present-day industrial enterprise. Some of the subjects which will be discussed will be operation analysis, method evaluation, work measurement; predetermined elemental time standards and work sampling.

Text: Maynard, *Industrial Engineering Handbook* (McGraw Hill).

58

3A4-511. MARKETING PLANNING AND STRATEGY. (6 credits.) Mr. B. C. LeRoyer. 30 lectures of 2 hours. Mondays at 8 p.m., beginning August 27. *Fee:* $110.00 *Prerequisite:* **3A0-511** or equivalent.

A study of marketing management problem areas emphasizing an analytical approach to planning. Subjects will include the marketing plan; new product evaluation; test marketing problems; computer application; relationship with other corporate departments, etc. Individual assignments and group projects will be emphasized.

Text: Frey, A. W., *Marketing Handbook,* latest edition (Ronald Press).

59

3A4-521. SALES ORGANIZATION. (6 credits.) 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.00.

An analytical study of the techniques and policies employed in the operation of a sales organization. The approach is from the viewpoint of the sales managers of an enterprise. Extensive use will be made of case materials in considering the problems of recruiting, training, controlling and managing the sales force. Sales appeals, quotas, and sales analysis and forecasting will also be discussed.

60

3B4-531. MARKETING RESEARCH (Consumer Survey). (3 credits.) Mr. W. C. Derry. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $55.00.

The application of marketing research to problem areas, such as advertising, sales management, product strategy and distribution. The use of marketing research in specialized areas such as consumer motivation and buyer behaviour, market structure and potentials and sales forecast.

Text: Drake and Millar, *Marketing Research:* Intelligence and Management (International Textbook).

61

3C4-561. INDUSTRIAL MARKETING. (3 credits.) Mr. A. F. Wrenshall. 15 lectures of 2 hours. Tuesdays at 6 p.m., beginning January 8. *Fee:* $55.00.

This is a practical course, aimed at equipping the student to move into a marketing position in an industrial company, either from the sales or engineering side. Successful completion of "Introduction to Marketing" is desirable but not essential. Course stresses the environmental and operational factors that distinguish industrial from consumer marketing: examines such specifics as market research, pricing, advertising and sales promotion, distribution channels, buyer motivation. and others. Strong emphasis is placed on the application of classwork and assignments to the student's own corporate environment and position.

62

3A5-811. GENERAL INSURANCE I (BROKERS). Mr. B. J. Finestone. 30 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $110.00.

An introductory course into the law, theory and practice of insurance. The course will deal with policy construction and interpretation for all major classes of insurance including automobile, fire, crime, liability and life. This course will use the Insurance Brokers' Association text book and is designed for entrants into the practice of insurance, but will also be helpful for nonprofessionals who desire a general understanding of insurance.

Text: Vol. I available from Insurance Brokers' Association, 550 Sherbrooke St. W., Suite 1570, Montreal 111, Tel. 842-2591.

63

3A5-821. GENERAL INSURANCE II (BROKERS). Mr. B. J. Finestone. 30 lectures of 2 hours. Thursdays at 6 p.m., beginning August 30. *Fee:* $110.00.

This is an advanced course open only to applicants who have an A.I.B. or who have successfully completed General Insurance I. It will cover most of the same classes of insurance covered in the preliminary course but will deal with the material more extensively and in greater depth. The course is oriented towards the application of insurance knowledge and features Risk Analysis and designing and insurance program.

Texts: Two volumes, available only from the Chartered Insurance Brokers Association at a total cost of $40, are mandatory for this course. Address, 550 Sherbrooke St. W., Suite 1570, Montreal 111, Tel. 842-2591.

64

3A5-831. BUSINESS LAW. (6 credits.) Mr. B. Cleven. 30 lectures of 2 hours. Thursdays at 6 p.m., beginning August 30. *Fee:* $110.00.

The business course is designed to provide an understanding of our legal system and how business functions in it. Emphasis will be placed upon the basic underlying concepts such as limited liability in the case of a corporation. Readings will include decisions of court and material from Canadian and Quebec statutes. The current changes in the Civil Code will be examined and discussed as they occur during the course. The first term will include treatment of the following topics:

Introduction to the Legal System
Corporations
Partnership
Obligations including contracts, fault, and special contracts.

The second term will include treatment of regulation of business, taxation, labour laws, consumer protection laws, bankruptcy, negotiable instruments, security for contractual obligations, real property, insurance, the corporation and its relation to Criminal Law.

Text: Quebec Civil Code.

65

3A7-011. MANAGERIAL ACCOUNTING. (6 credits.) Mr. G. S. Rowan. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00.

Benefits arising from a better understanding of latest accounting techniques for planning and control will be demonstrated. The lectures, presented in non-technical terms, will show how knowledge of cost behaviour patterns can assist management in various facets of running a transportation company.

Text: Anthony, R., *Management Accounting* (Irwin). Israel, *Essentials of Accounting* (Addison-Wesley).

66

3C7-511. MARKETING IN THE TRANSPORTATION INDUSTRY. (3 credits.) Mr. R. Bechamp. 15 lectures of 2 hours. Tuesdays at 8 p.m., beginning January 8. *Fee:* $55.00.

This course is designed to apply general marketing theory to the transportation industry. Special emphasis will be given to the nature of a market in transportation, how market research may be performed with reference to specific cases in both passenger and freight transportation, motivation of passengers and industrial traffic purchasers as well as the various means of communicating with the consumers such as personal selling, advertising and sales promotion in transportation. Class participation, discussions, case studies and practical exercises in fields related to the student's work will be stressed.

Text: Stanton, W. J., *Fundamentals of Marketing* (McGraw-Hill).

Reference: Slaudt and Taylor, *A Managerial Introduction to Marketing* (Prentice Hall).

67

3A7-611. TRANSPORTATION POLICY AND MANAGEMENT. (6 credits.) Mr. Glen MacLaren. 30 lectures of 2 hours. Tuesdays at 8 p.m. beginning August 28. *Fee:* $110.00.

The course is designed to provide students with new perspectives of their particular mode of transport and of all other modes. Executives of transportation companies will be guest lecturers. Management policies and the economic characteristics of each mode, their competitive position, their planning and current technology will be examined.

Government policy and Canadian transport will be discussed as well as transportation from the view of the user and transportation as it relates to our society in general. Case studies and a term paper will be included.

68

3A7-711. QUANTITATIVE METHODS AND DECISION-MAKING. (3 credits.) Mr. T. E. Kingsbury. 30 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $110.00.

The course will examine basic statistical techniques used in the analysis and solution of business problems. Specific reference will be made to the transportation field, through transportation related case material.

Texts: Battersby, *Mathematics in Management* (Pelican); Moroney, *Facts from Figures* (Pelican).

69

3B7-721. TRANSPORTATION DISTRIBUTION SYSTEMS (LOGISTICS). (3 credits.) Mr. M. Copeland. 15 lectures of 2 hours. Mondays at 8 p.m., beginning August 27. *Fee:* $55.00.

To ensure that this course is completed before Christmas, lectures will be scheduled Wednesday, September 5 and Wednesday, September 12.

These lectures will deal with the logistics of both people and goods. The transportation of people will be considered from the point of view of the traveller, the city regional planners, and transportation companies. The transportation of goods will focus on the development of integrated distribution systems for shipper companies and the implications of such systems for carrier management. Relationships among inventory, transportation and warehousing costs, and methods for determining profitable combinations will be explored.

Text: Heskett, Ivie and Glaskowsky, *Business Logistics* (Ronald Press).

70

3A7-811. TRANSPORTATION LAW AND GOVERNMENT REGULATIONS. (6 credits.) Mr. H. Pye. 30 lectures of 2 hours. Thursdays at 8 p.m., beginning August 30. *Fee:* $110.00.

This course will review various aspects of the law as it relates to all modes of public transportation in Canada. It will deal with the Law of the Carriage of Goods with a review of the rights and liabilities of the carriers, and shippers, and consignees with reference to the governing statute law and it will also review the new National Transportation Act and the legal consequences of the declared national transportation policy.

Texts: Report of MacPherson Royal Commission on Transportation, Volume I (Queen's Printer); *National Transportation Act* (Queen's Printer); *Railway Act* (Queen's Printer).

71

3A7-911. TRANSPORTATION ECONOMICS. (6 credits.) Mr. W. G. Scott. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.00.

This course covers Transportation Economics for rail, air, truck, bus, steamship and pipeline as means of transporting goods and people. It surveys the historical influence of Government on the economics of transportation costs and prices; the cost and price structure of competitive carriers; price policies under conditions of pure competition, imperfect competition and monopoly. It also deals with administrative pricing within the transportation industry and the effect of regulation on pricing policy of carriers.

Readings: Reports of the MacPherson Royal Commission, National Transportation Act, 1967 (Queen's Printer, Volumes I and II).

72

3C7-921. MANAGERIAL ECONOMICS AND BUSINESS FORECASTING. (3 credits.) Mr. Peter Watson. 15 lectures of 2 hours. Thursdays at 6 p.m., beginning January 10. *Fee:* $55.00.

The emphasis in this course is on the managerial problems of the transportation firm and the analytical tools available to solve them. The successful completion of the Marketing in the Transportation Industry course is advisable as a prerequisite, but not essential. Topics covered include: forecasting techniques such as trend analysis, time series, regression and market research techniques, both qualitative and quantitative including models of consumer behaviour, preparation of the business review and development of the marketing plan.

Text: Montgomery & Urban, *Management Science in Marketing* (Prentice Hall).

73

3A8-811. APPRAISAL OF REAL ESTATE I. Mr. S. Abboub. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00 (plus Institute fee).

This is the first course in a program of lectures, problems and case studies designed to provide professional training in real estate appraising. Subjects in this course include the nature of real property and value, the Appraisal Process, site analysis and valuation, property inspection, building materials and equipment. Cost Approach, depreciation and the legal aspects of real estate.

Students completing this course may apply to the Appraisal Institute of Canada to write the first year examination.

Text: Real Estate Appraising in Canada, Appraisal Institute of Canada, Suite 502, 177 Lombard Avenue, Winnipeg 2, Manitoba.

74

3A8-821. APPRAISAL OF REAL ESTATE II. Mr. K. D. Leonard, A.A.C.I. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.00 (plus Institute fee).

This course is designed as a continuation of the first year (3A8-811) in which primary emphasis will be placed on income and operating expense analysis, methods and techniques of capitalization, Mortgage Equity capitalization, residual techniques, Market Data Approach, and the appraisal of lease interests. Emphasis will be placed upon practical urban appraisal problems.

Students completing this course may apply to the Appraisal Institute of Canada to write the corresponding second year examination.

Text: Real Estate Appraising in Canada, Appraisal Institute of Canada, Suite 502, 177 Lombard Avenue, Winnipeg 2, Manitoba.

75

3A8-831. APPRAISAL OF REAL ESTATE III. Mr. David Hughes. 30 lectures of 2 hours. Wednesdays at 6 p.m., beginning August 29. *Fee:* $110.00 (plus Institute fee).

This course is designed as a continuation of the second year (3A8-821) in which primary emphasis will be placed upon the integral aspects of preparing an appraisal report on an income producing property as well as case studies dealing with typical market behaviour on various property types.

Students completing this course may apply to the Appraisal Institute of Canada to write the third year examination.

Text: Real Estate Appraising in Canada, Appraisal Institute of Canada, Suite 502, 177 Lombard Avenue, Winnipeg 2, Manitoba.

76

3A8-911. ECONOMICS FOR REAL ESTATE APPRAISERS. Students may satisfy this requirement by completing **3A0-911, Principles of Economics.** Number 16 in the description of courses.

77

3C8-921. LAND ECONOMICS. (3 credits.) Professor G. Ewing. 15 lectures of 2 hours. Wednesdays at 6 p.m., beginning January 9. *Fee:* $55.00.

Primary emphasis on urban land economics and use. Specific topics are the pattern of land values and their determinants, land development patterns, land use competition theory, land use succession, the locational criteria of industrial, warehousing, wholesaling, retailing and residential land uses in metropolitan areas. Also an introduction to agricultural land economics and mineral values of land.

Text: L. S. Bourne, *Internal Structure of the City: Readings on Space and Environment,* Oxford University Press, 1971.

78

3A9-311. SYSTEMS INNOVATION WORKSHOP. (6 credits.) Mr. M. Collins and Mr. J. Kirby. 30 lectures of 2 hours. Tuesdays at 8 p.m., beginning August 28. *Fee:* $110.00. *Prerequisites:* Some business experience (2 years minimum). Either (i) programming experience, or (ii) any computer programming course.

The course objective is to enable the student to recognize and specify the requirements of a data processing system, and to design and document manual and computer procedures to achieve these requirements. Lectures on design principles and special techniques will be combined with a workshop approach during which small groups of students will develop and document design specifications for two complete systems.

79

3B9-321. SYSTEMS IV (Internal Controls and Systems Design). (3 credits.) Mr. Colin Campbell. 15 lectures of 2 hours. Wednesdays at 8 p.m., beginning August 29. *Fee:* $55.00.

This course is designed to promote an understanding of the need to incorporate control features into the design of an electronic data processing system and a knowledge of the control techniques available. It covers procedures for evaluating the controls which have been incorporated into a specific system and for determining whether such controls are adequate. It includes discussion of the physical protection of data software and hardware. Its purpose is to provide management accounting, systems and data processing personnel with an in-depth analysis of internal control techniques and computer system protection.

Text: Galley, Thomas A., *The Association for Systems Management Manual on Internal Controls and Systems Design and Computer Protection* (Association for Systems Management).

80

3A0-401. FINANCIAL ANALYSIS AND BUSINESS MANAGEMENT. (6 credits.) 30 lectures of 2 hours. Thursdays at 6 p.m., beginning August 30. *Fee:* $110.00. *Prerequisite:* Basic course in Accounting.

This course involves a comprehensive study of the problems and decisions confronting the business executive, with particular emphasis on financial analysis, corporate acquisitions and mergers, pricing, and profit making.

81

3A9-611. SYSTEMS V (Project Management). (6 credits.) Mr. M. L. Jacobson. 30 lectures of 2 hours. Mondays at 6 p.m., beginning August 27. *Fee:* $110.00. *Prerequisite:* **Systems IV** or equivalent experience.

A study of the techniques available to the project leader that enable him to translate a system's proposal into an operational system. Emphasis will be placed upon resource budgeting coordination and control via Gant, P.E.R.T. and C.P.M., techniques; as well as methods of organization, communication and motivation. Extensive use will be made of teaching aids and guest lecturers in an effort to relate to the specific realities confronting the systems project manager.

Text: To be announced.

82

3A9-711. SYSTEMS III (Introduction to Management Sciences). (6 credits.) Mr. M. Litwin. 30 lectures of 2 hours. Tuesdays at 6 p.m., beginning August 28. *Fee:* $110.00.

To acquaint the student with the modern quantitative methods being applied to management and business problems. Topics include: the scientific method, review of mathematical concepts, systems and models in operations research, linear programming, allocation problems, critical path method, probability and decision theory, inventory control, simulation and queueing theory.

Texts: Beer, S., *Management Science* (Doubleday); Shuchman, Abe, *Scientific Decision Making in Business* (Holt Rinehart); Buttersby, Albert, *Mathematics in Management* (Penguin).

83

3A1-041. ACCOUNTING FOR MANAGEMENT. (6 credits.) 30 lectures of 2 hours. Thursdays at 6 p.m., beginning August 30. Arts Building. *Fee:* $110.00. *Prerequisite:* **3B1-021 Accounting II** or equivalent.

This course is primarily for R.I.A. students in Level III of the New Curriculum.

Syllabus: Conceptual framework of managerial accounting. Cost determination and analysis: cost concepts and terminology, measurement and accumulation of costs. Accounting for management control: job order cost and cost control, process costing, spoilage, waste, defective units, joint and by-product costing. Accounting for management planning: operation budgeting and coordination of plans, models for budgeting, linear programming applications, budget simulation, pro-forma financial statements, cost behaviour and flexible budgets.

9.4.1 COURSE LIST BY SUBJECT (4th DIGIT IN COURSE NUMBER)

SECTION 0-1 ACCOUNTING

1. Accounting — A Management Approach
17. Accounting I
18. Accounting I
19. Accounting II
20. Accounting III
20a. Accounting IV
21. Managerial Accounting I
22. Managerial Accounting II
23. Managerial Accounting III
24. Auditing I
25. Auditing II
26. Taxation A
27. Taxation B
40. Fundamentals of Accounting
41. Financial Accounting
50. Accounting Principles
65. Managerial Accounting
83. Accounting for Management

SECTION 2 BEHAVIOURAL SCIENCE

2. Organizational Behaviour
3. Communications
4. Administrative Procedure
28. Management I
31. Management II
42. Communications
51. Management of Human Resources
52. Business Organization

SECTION 3 COMPUTER

5. Introduction to Electronic Data Processing
6. Introduction to Systems Innovation
29. Computer Systems
78. Introduction to Systems Innovation Workshop
79. Systems IV

SECTION 4 FINANCE

30. Finance
43. Business Finance
44. International Banking
80. Financial Analysis and Business Management

SECTION 5 MARKETING

7. Introduction to Marketing
8. Retail Locations
9. Salesmanship
10. Advertising Management
53. Marketing
58. Marketing Planning and Strategy
59. Sales Organization
60. Marketing Research
61. Industrial Marketing
66. Marketing in Transportation Industry

SECTION 6 POLICY—GENERAL ADMINISTRATION

11. Airport Management
45. Business Strategy
46. Business Administration
54. Cases and Problems in Administration
67. Transportation Policy and Management
81. Systems V (Project Management)

SECTION 7 QUANTITATIVE METHODS

32. Mathematics I
33. Mathematics and Statistics II
34. Mathematics and Statistics III
35. Mathematics and Statistics IV
55. Statistical Concepts
56. Operation Planning and Analysis
68. Quantitative Methods and Decision-Making
69. Transportation Distribution Systems
82. Systems III (Introduction to Management Science)

SECTION 8 GENERAL

12. Industrial Relations and Labour Law
13. Written Communications in Business
14. Introduction to Travel Counselling
15. A Practical Course in Public Relations
36. Law I
36a. Law II
37. Report Writing
47. Business Law
57. Industrial Engineering
62. General Insurance I
63. General Insurance II
64. Business Law
70. Transportation Law and Government Regulations
73. Appraisal of Real Estate I
74. Appraisal of Real Estate II
75. Appraisal of Real Estate III

SECTION 9 ECONOMICS

16. Principles of Economics
38. Economics I
39. Economics II
48. Economics
49. Money and Banking
71. Transportation Economics
72. Managerial Economics and Business Forecasting
76. Economics for Real Estate Appraisers
77. Land Economics

9.4.2 COURSE LIST BY PROGRAM (3rd DIGIT IN COURSE NUMBER)

POOL OF COURSES (0)

1. Accounting — A Management Approach
2. Organizational Behaviour
3. Communications
4. Administrative Procedures
5. Introduction to Electronic Data Processing
6. Introduction to Systems Innovation
7. Introduction to Marketing
8. Retail Locations
9. Salesmanship
10. Advertising Management
11. Airport Management
12. Industrial Relations and Labour Law
13. Written Communications in Business
14. Introduction to Travel Counselling
15. A Practical Course in Public Relations
16. Principles of Economics
80. Financial Analysis and Business Management

R.I.A./CGA (1)

17. Accounting I
18. Accounting I
19. Accounting II
20. Accounting III
20a Accounting IV (1B5-500)
21. Managerial Accounting I
22. Managerial Accounting II
23. Managerial Accounting III
24. Auditing I

25. Auditing II
26. Taxation A
27. Taxation B
28. Management I
29. Computer Systems
30. Finance
31. Management II
32. Mathematics I
33. Mathematics and Statistics II
34. Mathematics and Statistics III
35. Mathematics and Statistics IV
36. Law I
36a. Law II
37. Report Writing
38. Economics I
39. Economics II
83. Accounting for Management

BANKERS (2)

40. Fundamentals of Accounting
41. Financial Accounting
42. Communications
43. Business Finance
44. International Banking
45. Business Strategy
46. Business Administration
47. Business Law
48. Economics
49. Money and Banking

INSTITUTE OF MANAGEMENT (3)

50. Accounting Principles
51. Management of Human Resources
52. Business Organization
53. Marketing
54. Cases and Problems in Administration
55. Statistical Concepts
56. Operation Planning and Analysis
57. Industrial Engineering

MARKETING (4)

58. Marketing Planning and Strategy
59. Sales Organization
60. Marketing Research
61. Industrial Marketing

INSURANCE BROKERS (5)

62. General Insurance I (Brokers)
63. General Insurance II (Brokers)
64. Business Law

TRANSPORTATION (7)

65. Managerial Accounting
66. Marketing in the Transportation Industry
67. Transportation Policy and Management
68. Quantitative Methods and Decision-Making
69. Transportation Distribution Systems (Logistics)
70. Transportation Law and Government Regulations
71. Transportation Economics
72. Managerial Economics and Business Forecasting

APPRAISAL OF REAL ESTATE (8)

73. Appraisal of Real Estate I
74. Appraisal of Real Estate II
75. Appraisal of Real Estate III
76. Economics for Real Estate Appraisers
77. Land Economics

SYSTEMS DESIGN (9)

78. Introduction to Systems Innovation Workshop
79. Systems IV (Internal Controls and Systems Design)
81. Systems V (Project Management)
82. Systems III (Introduction to Management Sciences)

9.4.3

COURSE LIST BY EVENING AND TIME

MONDAY 6 p.m.

1. Acct. - Mgt. Appr.
2. Org. Beh.
6. Intro. to Systems Innovation
10. Advt. Mgt.
11. Airport Mgt.
16. Princ. of Econ.
17. Accounting I
18. Accounting I
24. Auditing I
25. Auditing II
26. Taxation A
35. Math. & Stats. IV
40. Fund. of Acct.
44. International Banking
45. Bus. Strategy
46. Bus. Admin.
48. Economics
49. Money & Banking
55. Statistical Concepts
57. Indus. Engineering
65. Managerial Acct.
73. Appr. of R.E. I
76. Econ. for Real Estate Appraisers
81. Systems V

MONDAY 8 p.m.
12. Ind. Rel. & Labour Law
28. Mgt. I
36a Law II
38. Economics I
39. Economics II
40. Fund. of Acct.
58. Mkt. Plann. & Strategy
69. Transp. Distrib. Systems

TUESDAY 6 p.m.
5. Intro. to E.D.P.
7. Intro. to Mkt.
9. Salesmanship
19. Acct. II
27. Taxation B
40. Fund. of Acct.
50. Acct. Principles
50. Acct. Principles
52. Bus. Organiz.
53. Marketing
56. Oper. Plann. & Analysis
59. Sales Organiz.
60. Mkt. Research
61. Ind. Mkt.
71. Transp. Economics
74. Appr. of R.E. II
82. Systems II

TUESDAY 8 p.m.
13. Written Communic. in Bus.
29. Comp. Systems
40. Fund. of Acct.
66. Mkt. in Transp. Industry
67. Transp. Policy & Mgt.
78. Systems Innov. Workshop

WEDNESDAY 6 p.m.
2. Org. Beh.
3. Communications
7. Intro. to Mkt.
8. Retail Locations
20. Accounting III
32. Mathematics I
33. Math. & Stats. II
34. Math. & Stats. III
41. Fin. Acct.
43. Bus. Fin.
47. Bus. Law
51. Mgt. of Hum. Res.
54. Cases & Probl. in Admin.
62. General Ins. I
68. Quant. Methods & Dec. Making
75. Appr. of R.E. III
77. Land Economics

WEDNESDAY 8 p.m.
2. Org. Beh.
3. Communications
14. Intro. to Travel Counselling
15. A Practical Course in P.R.
42. Communications
46. Bus. Admin.
79. Systems IV

THURSDAY 6 p.m.
4. Admin. Procedures
18. Accounting I
20a Accounting IV
21. Managerial Acct. I
22. Managerial Acct. II
23. Managerial Acct. III
30. Finance
36. Law I
37. Report Writing
63. Gen. Insur. II
64. Business Law
72. Managerial Economics & Bus. Forecasting
80. Financial Analysis & Bus. Mgt.
83. Accounting for Management

THURSDAY 8 p.m.
7. Intro. to Mkt.
31. Mgt. II
36a Law II
70. Marketing Res.

CENTRE FOR CONTINUING EDUCATION

APPLICATION FOR CLASSIFICATION TEST

(for more information, see pages 30 and 33)

Please find enclosed the amount of $5.00

(Cash or Money Order — Personal Cheques not accepted)

I wish to register for the English ☐ French ☐

Classification test to be held on:

ENGLISH COURSES				FRENCH COURSES			
Thursday	August	30	☐	Thursday	September	6	☐
Wednesday	September	5	☐	Wednesday	September	12	☐
Tuesday	September	11	☐	Tuesday	September	18	☐
Monday	September	17	☐				

Important:
- Location of test will be given on receipt
- Fee for test not refundable
- Tests will start at 7 p.m.

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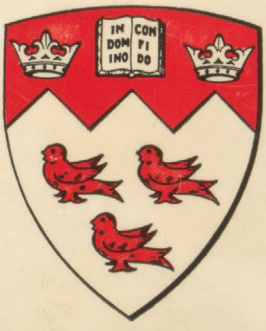
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DATE: ..... SIGNATURE: .....

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